

HAWAII AGRICULTURAL EXPERIMENT STATION
of the
UNIVERSITY OF HAWAII

BULLETIN No. 84

TARO VARIETIES IN HAWAII

by

LEO D. WHITNEY, Assistant Agronomist

F. A. I. BOWERS, Principal Agricultural Aide

M. TAKAHASHI, Junior Agronomist

CONTENTS

| | PAGE |
|--|------|
| Introduction | 5 |
| Historical Review | 6 |
| Botany | 7 |
| Present Investigation | 9 |
| Key to Taro Varieties..... | 14 |
| Descriptions of Classified Varieties..... | 19 |
| Descriptions of Unclassified Varieties..... | 65 |
| Appendix | 71 |
| Finding Lists | 73 |
| Illustrated Glossary of Botanical Terms..... | 79 |
| Glossary of Hawaiian Terms..... | 81 |
| Literature Cited | 83 |
| Index | 85 |

INTRODUCTION

Taro, one of the oldest cultivated crops in the world, has long been a staple food of the natives of all the Polynesian islands as well as in the West Indies and the Orient. Since taro is propagated almost exclusively by vegetative means, each locality has tended to perpetuate its own forms, or "horticultural varieties."¹ Some of these forms have remained localized; others have spread, and many of them have been given new names. In the past, the valuation of the various taros in Hawaii has been based on their quality as cooked table taro or for making poi. A few are raised primarily for their leaves, used for *luau*,² and the old Hawaiians had varieties for medicinal purposes and for offerings to the gods. The two types of taro culture common in Hawaii have formed another basis for segregating varieties: wetland varieties (submerged culture), all of which are good for poi; and upland varieties (nonsubmerged culture), which are used primarily as table taro, only a few of them being suitable for poi.

Within recent years, numerous scientific investigations (6, 10)³ have indicated the superiority of taro over other starchy crops (particularly polished rice) which are staple foods in the Pacific regions. The emphasis on this fact by local physicians and nutritionists has led to an increased demand for taro and a new interest in the cultivation of the crop. With commercial development, a need has arisen for varieties particularly adapted to the production of taro flour, beverage powders, and other dried taro products.

In addition, the problems involved in wetland culture—particularly the menace of disease—and the necessity of extending plantings by utilizing new lands have made important the selection of varieties which will grow well in the moist, cool uplands.

Experiments have recently been conducted by this station on selection and development of desirable varieties through cross-pollination (4, 7) as well as through natural vegetative mutation (4). Systematic work along these lines must, however, be preceded by a classification of the many varieties present in Hawaii. In 1914, MacCaughey and Emerson (8) listed about 300 varietal names of taro in Hawaii,

¹ The term "variety" will be used throughout this bulletin to signify "horticultural variety."

² For definition of Hawaiian expressions (*italic*) used throughout this bulletin, see p. 81.

³ Reference is made by number (*italic*) to Literature Cited, p. 83.

approximately half of which they estimated to be synonyms. The confusion which has resulted from the large number of varieties and synonymous names has made evident the need of a taxonomic key for grouping and describing the taros in terms of their distinguishing characters. The present study includes such a key, on the basis of vegetative characters, and descriptions of the varieties which the writers have been able to find in Hawaii, with all available information as to origin, distribution, and use.

HISTORICAL REVIEW

Taro was mentioned in Chinese books as early as 100 B.C. It was evidently thriving in Egypt at the beginning of the Christian era, as Pliny (23-79 A.D.) refers to it as one of the established food plants of the country. The accounts of the early European navigators tell of the cultivation of this crop in Japan and the western Pacific islands as far south as New Zealand. Taro has long been intimately identified with the south Pacific islands, but nowhere has it attained so much importance as in the Hawaiian group.

Like other food crops with wide distribution, the plant has been known by various names in different parts of the world. European botanists first knew it in Egypt under the name *culcas*, and it was thought to have been introduced from India or Ceylon. In Ceylon the wild plant is named *gahala*. The Malay names are *kelady*, *tallies*, or *taloos*, from which may come the better-known Polynesian names—*tallo*, *tarro*, or *darro* in Fiji, *ta'o* in the Marquesas, *talo* in Samoa, and *taro* or *kalo* in Hawaii, Tahiti, the Cook Islands, and New Zealand. The Philippine name is *gabi*. The plant is known in various parts of the West Indies as *eddo*, *coco*, and *malanga*; one of the East African names is *malombo*; the Japanese call it *imo*.

The numerous varieties found in Hawaii today seem conclusive evidence that taro has been cultivated in these islands for many centuries. When white men first came, in the latter part of the eighteenth century, taro was flourishing. As the "staff of life" of the early Hawaiians, it was no doubt taken with them as they moved from place to place. It is assumed that taro was brought by the first Polynesians who migrated to Hawaii, and some ethnologists feel that the study of this crop may yield interesting clues as to the origin of the Hawaiian race. All through Hawaiian history is woven the story of taro: to no other plant is so much native sentiment attached.

There are no authentic records as to the total acreage planted to taro in the early Hawaiian period or even during the past century. As one of the principal foods of an early population estimated at 300,000 (3), the crop must have covered many thousands of acres. With the advent of other races, changes in modes of living, and the rapid dwindling of the native population, taro plantings have so decreased that the present estimate of commercial cultivation is only about 1,200 acres (9).

In earlier days taro plantings in upland, nonirrigated areas were probably as important as in the low-lying, irrigated valleys. In the latter part of the last century, profound change took place in the growing and processing of taro. Soon after the heavy influx of immigrants from the Orient, the Chinese commercialized the making of poi and, not long thereafter, took up the growing of taro to a large extent. It was found that taro was well adapted to the type of submerged culture used by the Chinese for rice, and commercial production became centered in low-lying, alluvial flats and small valleys where the land could be diked and running water led into the paddies.

There remain, however, small taro patches tended by the old Hawaiians. The favored locations are cool, moist uplands, where the taro edges the fresh waters of a spring or is planted in patches in very humid areas. In the commercial plantings only a few varieties are cultivated, and almost the entire crop is used for poi. In the upland patches are found many forms from the early Hawaiian period, each serving a special purpose. The different poi taros, table taros, *luau* taros (the leaves of which are used for greens), early- and late-maturing and drought-resistant taros, medicinal taros, and taros used for fishing and for various ceremonials are all represented.

BOTANY

Taro is a member of the Arum family, Araceae, which contains about 100 genera and 1,500 species, most of which are subtropical or tropical. They tend to be aquatic, but some are epiphytic. Among the more familiar plants in this family are the calla lily, the anthurium, and the ornamental caladiums.

Taro belongs to the genus *Colocasia*, a word which has been connected through the Greek with the ancient Egyptian name of taro, *culcas*. The scientific name of taro is *Colocasia esculenta* (L.) Schott.

All of the numerous and diverse types of cultivated taros seem to be varieties or forms of the one species.¹ The many forms of dasheens are also included in this species, under the botanical variety *globulifera*; they have distinctive characteristics which set them apart from the other taros. Following is a taxonomic description of taro:

Extremely variable, succulent, glabrous herb, 4 to 18 dm. tall. Stem a subterranean corm with scaly outer bark and thin, usually highly colored cortex, single or branching from the apex, with conspicuous leaf-scar rings, producing cormels (*oha*) or rhizomes as offshoots. Petioles 4 to 18 dm. long, erect or spreading, sheathing at base with sinus to about midway, uniformly light or dark green to variously highly colored, striped, or flecked. Blades 25 to 85 cm. long, 20 to 60 cm. wide, usually peltate, ovate to more or less sagittate, the apex acuminate, a dark-colored spot known as *piko* on the upper surface at the point of junction with petiole. Inflorescences 2 to 5 together in the leaf axils, the peduncles 15 to 50 cm. long, each spadix enclosed within a spathe. Spathes oblong-lanceolate, divided by a transverse constriction into two unequal parts, the lower part 3 to 5 cm. long, loosely or tightly convolute, more or less fleshy, tubular, the upper part 15 to 35 cm. long, usually tightly but sometimes loosely convolute, lanceolate. Spadix 6 to 14 cm. long, with female flowers at the base, consisting of a few obovoid or ellipsoid ovaries 0.5 to 1.5 mm. in diameter, the stigma sessile, capitate; constricted above the female flowers and beset over a length of 2 to 5 cm. with light yellow sterile flowers; above the sterile flowers and over a length of 2 to 4 cm. beset with male flowers consisting of 2 to 6 sessile anthers which are fused into an obconical synandrium; with yellow constricted, obtuse or acute sterile appendage at apex. Fruit a berry, 3 to 5 mm. across, ellipsoid. Seed 1.2 to 1.5 mm. long, 0.7 to 1 mm. wide, hard, ovoid.

The taros are closely related to the yautias, or taniers (*Xanthosoma* spp.), and the alocasias (*Alocasia* spp.), as well as to the dasheens. In the literature dealing with the edible aroids, there has been considerable confusion in the identification of these groups. As far as the writers can determine, there is no apparent difference between the taros and dasheens in morphology of the petioles and blades. Except for the *Piko* taros, all forms of both have peltate leaves. The corms of the dasheens can be stored for 2 to 6 months after harvesting without appreciable deterioration in quality whereas the Polynesian taros almost invariably rot or become inedible within

¹ Eight botanical varieties—nearly all of them considered as distinct species at times in the past—of *Colocasia esculenta*, besides the variety *typica*, have recently been published (5). They are as follows:

- var. *nymphaeifolia* (Vent.) A. F. Hill comb. nov.
- var. *globulifera* (Engl. & Krause) Young.
- var. *aquatilis* Hasskarl.
- var. *acris* (R. Br.) A. F. Hill comb. nov.
- var. *antiquorum* (Schott) Hubbard & Rehder.
- var. *euchlora* (C. Koch & Sello) A. F. Hill comb. nov.
- var. *fontanesii* (Schott) A. F. Hill comb. nov.
- var. *illustris* (Bull) A. F. Hill comb. nov.

a month after harvesting. The corm texture of the two groups is distinctly different: dasheens have crisp texture and are easy to cut; the taros, on the other hand, have a somewhat tough, spongy texture with numerous fibers. Corms of dasheens cannot be made into poi; they become mealy and flaky rather than viscous during the poi-making process. Dasheens almost invariably produce greater numbers of *oha*, and as many as six successive generations may be found in a single mature hill 8 months old. In these respects, the three Japanese taros growing in Hawaii (*Akado*, *Tsurunoko*, and *Miyako*) and one variety of unknown origin (*Iliuaua*) more closely resemble the dasheens than the native taros. Barrett (1) calls the dasheens "tuberous-rooted taros, usually of dwarfish habit."

Yautias are differentiated from the dasheens and taros in several respects. The yautias, in general, make ranker growth, the plants are thicker-set, and the parent plants live longer than either the taros or dasheens. The sinus between the basal lobes of the leaf is always clearly cut to the petiole, as in the *Piko* group of taros, and, in the yautias, the primary veins of the basal lobes are exposed directly to the sinus for a distance of about one-fourth to one-half inch from the *piko*. The petioles of the yautias are nearly always covered with a certain amount of bloom, while the taros and dasheens are without this bloom. Except for two varieties (*Tsurunoko* and *Iliuaua*), the edges of the taro petiole are more or less convergent along the groove or sinus except at the portion clasping the younger petioles, while those of the yautias are distinctly divergent. The starch grains of yautias are many times larger than those of taros or dasheens.

PRESENT INVESTIGATION

SOURCES OF MATERIALS

Collections of taro varieties in Hawaii have been made from time to time by various individuals and institutions. Since maintenance of taro involves considerable care, frequent replantings, and changes in location to reduce losses by disease, nursery collections have not been consistently maintained. With the waning in importance and diversity of uses of taro, nursery collections have decreased in size and number, and some of the rarer varieties have gone out of existence. Others are to be found only occasionally, usually as mixtures with the more common forms. The lesser-known

varieties are mostly in remote home plantings of the old Hawaiians or growing wild in the wooded uplands and moist valleys.

In the present investigation every known source of material was used. Upland varieties were collected chiefly from the districts of Kona, Puna, and Honokaa on the island of Hawaii, and Makawao, Keanae, and Olowalu, on Maui. The commercial wetland areas, principally on Oahu and Maui, were surveyed, and plants showing distinct morphological differences were secured. Through the courtesy of E. S. C. Handy of the Bishop Museum, a collection of 86 varieties was received in 1934-35. Twenty-five of these were new additions to the station nursery; the remainder were either duplications or synonyms. Sixteen varieties of South Sea taros, collected by G. P. Wilder during an extended exploration of that area in 1927, were received in 1928. From all sources a little over 200 accessions were made. This number was reduced to 84 distinct forms, including 69 native varieties, 10 from the South Seas, 3 Japanese, 1 Chinese, and 1 of unknown but presumably Asiatic origin. Only 74 varieties have persisted in the station collection until the completion of the study.

Reference to the previously cited list of varieties compiled by MacCaughey and Emerson makes evident the fact that many are missing from the present collection. Accepting their estimate of about 50 percent synonymy among the 300 varietal names listed, the old Hawaiian recognized 150 to 175 distinguishable forms. Because of vague, fragmentary, and often contradictory descriptions, it is not always possible to determine when synonymy occurs in the list. However, there is ample evidence that many varieties have become extinct or at least do not exist in present collections or cultivated areas. For example, the 25 group names listed were all recognized by old Hawaiians; in the station collection, only 8 groups are found. Groups occurring in their list with as many as five varieties are now represented by a single form—they list five forms of *Piʻialii* and five of *Apuwai* whereas only one of each is now available. These were important groups and the uses of the different forms were apparently well known. In other groups, such as *Ahe*, *Eulu*, and *Lau*, none of the varieties has been found.

With the development of a system of classification, further collections and identifications will be greatly simplified, and a resurvey of the areas already covered as well as long-abandoned sections may

disclose other varieties. The present collection, however, undoubtedly represents most if not all of the varieties now under active cultivation.

MORPHOLOGICAL CHARACTERS DESCRIBED

Before attempting to set up a system of classification, a careful description was made of specimens of each variety grown at the Pensacola Branch Station for from one to three generations. After each harvest, those forms showing marked similarity were grouped together, and in cases of suspected synonymy the forms were grown side by side and carefully checked before eliminations were made. The following data, when available, were taken on from 5 to 50 plants of each horticultural variety:

General characters: Height, position, rigidity, maturity, reproduction, and distinguishing characters.

Petiole: Length and coloring, including special markings throughout, at the edge, the apex, and the base.

Leaf blade: Size, shape, texture, color, and special characteristics of *piko*, veins, margins, lobes, and sinus.

Corm: Color of flesh, fibers, and skin.

Inflorescence: Length, coloring, and shape of peduncle, spathe, spadix, and sterile appendage.

A key has been prepared which classifies only the 74 varieties which have persisted in the station collection. The 10 varieties which have not been continuously propagated are described from previously recorded data but, due to inability to check distinguishing characters, are not classified.

Since many varieties of taro seldom, if ever, produce inflorescences, the classification system is based on vegetative characters. Marked changes occur in the plant during its growth, especially as regards quantitative characters. The succeeding leaves and petioles increase in size to a maximum which occurs about 6 months after planting; from this stage to full maturity they decrease markedly. In addition, the color and markings of petioles and of corm flesh, the development of *oha* and rhizomes, and branching of corms depend upon stage of maturity to some extent. Extremes of fertility, moisture, and sunlight affect both quantitative and qualitative characters. It is important that observations and measurements be made on plants grown under normal conditions and not far removed from the period

of maximum top growth. Depending somewhat on growing conditions and the variety of taro, this period would generally range between 4 and 8 months of age. The taro plant is very succulent and loses its turgor soon after being pulled. Observations should, therefore, be made in the field as to open or upright position of petioles, texture, surface characteristics, and position of leaf blades.

The key for the classification of taro is admittedly open to criticism from many standpoints. In any vegetative key exact measurements, although helpful, are not reliable; this is particularly true of taro with its distinct cyclic growth. Color is, likewise, a somewhat variable attribute, but by and large it is the most stable of the characters used in the key. The characters used for subdivisions often group varieties which have little else in common. Such imperfections in a system of classification are not limited to taro—they occur with most plants in which a large number of forms or varieties have developed through vegetative propagation. In this category may be listed the sweetpotato, sugarcane, and banana.

Despite the obvious limitations, it is believed that the key as worked out is a distinct advance over previous attempts to list and describe large numbers of taro varieties with no grouping of related varieties or elimination of synonyms.

SYSTEM OF NOMENCLATURE

The old Hawaiian was an unusually keen observer of nature. He quickly noted small differences between plant forms, and there are few species which have existed in Hawaii for any appreciable length of time which do not have Hawaiian names. This is particularly true with respect to varieties of taro. In general, the names pertain to some obvious growth feature, a special use, or a specific locality. That the Hawaiian recognized definite groupings of varieties is also evident from the names.

In the system of classification herein used, it has been found possible to maintain, to a large extent, the groupings used by the Hawaiians. With few exceptions, the variety names have been retained, and from them considerable information can often be obtained as to origin, use, or growth characters. Such groupings as *Mana* and *Piko* were based on very obvious and constant characters which aid materially in identifying the varieties.

In order to retain the Hawaiian nomenclature to the maximum

and at the same time make evident the grouping, the following system has been adopted:

A single-word name indicates that the variety does not belong to a recognized group; for example, *Elepaio*, *Ohe*, and *Akado*.

A binomial name has been used where the variety is included in a group, the first word being the group name and the second generally a descriptive word. Thus, in *Piko Eleele*, *Piko* indicates that the variety belongs to the group having the sinus cut to the *piko*; and *Eleele* is the descriptive name. *Pikoele*, being a single name, indicates that the variety does not belong to the *Piko* group.

When a variety not belonging to any recognized group originally had a double name, the two words were hyphenated to indicate that the first was not a group name—as in *Kumu-eleele*.

Occasionally a variety within a group had a three-word name. To maintain the binomial system, the last two words were hyphenated—as in *Lauloa Palakea-keokeo*.

In giving the names of varieties, it is customary to consider priority of nomenclature, but this has not been possible in some instances. Where synonymy has been definitely established for two or more varietal names, the one in most general use was adopted and the others were listed as synonyms. In a few cases, a group name was placed before the common name to indicate that the variety possessed the group attributes. The varieties introduced recently from the South Seas were usually given the names of their places of origin; for a few forms entirely new Hawaiian names have been adopted.

KEY TO TARO VARIETIES

- a** Parent corms small (usually less than 10 cm. in diameter), producing numerous oha (rarely less than 20) which seldom develop shoots until the plants are mature (Japanese varieties).
 - b** Petiole sinus divergent.....1. **Tsurunoko**
 - bb** Petiole sinus not divergent.
 - c** Petioles greenish-bronze shading into reddish-purple at apex and base2. **Akado**
 - cc** Petioles dark green, slightly diffused with reddish-brown at apex and near base, light pink at base.....3. **Miyako**
- aa** Parent corms not small, producing fewer oha.
 - b** Parent corms large (usually over 15 cm. in diameter) ; petiole sinus conspicuously divergent4. **Iliuaua**
 - bb** Parent corms intermediate in size (usually from 10 to 15 cm. in diameter) ; petiole sinus not divergent.
 - c** Corms with conspicuous purple fibers in white flesh.....5. **Bun-long**
 - cc** Corms without purple fibers in white flesh (Polynesian varieties).
 - d** Parent corms producing rhizomes.
 - e** Rhizomes long (10 to 70 cm.), slender.....6. **Aweu**
 - ee** Rhizomes short (6 to 15 cm.), thick.....7. **Kakakura-ula**
 - dd** Parent corms not producing rhizomes.
 - e** Parent corms branching at apex (Group *Mana*).
 - f** Corm flesh yellow.
 - g** Petioles pink or reddish at base.
 - h** Young petioles pink throughout, at maturity yellowish-green except at base.....8. **Mana Ulu**
 - hh** Petioles chiefly pale green, prominently flecked with reddish-brown or purplish, especially near base9. **Mana Opelu**
 - gg** Petioles white at base.
 - h** Petioles dark green with conspicuous, broad blackish edges.....10. **Mana Weo**
 - hh** Petioles dark green with broad pinkish edges..11. **Mana Uliuli**
 - ff** Corm flesh whitish tinged with pink at apex or chalky white.
 - g** Corm flesh whitish tinged with pink at apex; petioles tinged or flecked with purple.
 - h** Petioles flecked with purplish-red, almost lacking in green.....12. **Mana Ulaula**
 - hh** Petioles dark green tinged with brownish-purple, dark brownish-purple on basal third.....13. **Mana Lau loa**
 - gg** Corm flesh chalky white; petioles chiefly green.
 - h** Petioles dark green with distinct pinkish-red edges14. **Mana Keokeo**
 - hh** Petioles pale green, pink at edges.....15. **Mana Kukuluhema**

- ee* Parent corms not branching at apex.
- f* Blades with sinus cut to the petioles; petioles with conspicuous ridge above sinus (Group *Piko*).
- g* Corm flesh lilac-purple.
- h* Blades with outgrowths of dark, crinkled tissue on lower surface16. *Piko Lehua-apei*
- hh* Blades without outgrowths of crinkled tissue.....17. *Piko Ulaula*
- gg* Corm flesh whitish.
- h* Petioles light green, usually with dark green blotches adjacent to edges.
- i* Petioles pink at base.....18. *Piko Kea*
- ii* Petioles white at base.....19. *Piko Keokeo*
- hh* Petioles dark green or reddish-brown to purplish.
- i* Petioles dark green.
- j* Petioles pink at base.....20. *Piko Uaua*
- jj* Petioles white at base.....21. *Piko Uliuli*
- ii* Petioles reddish-brown to purplish, especially on lower half22. *Piko Eleele*
- ff* Blades not cut to the piko; petioles without conspicuous ridge above sinus.
- g* Blades distinctly variegated.
- h* Blades mottled over entire surface.
- i* Blades mottled green and white.....23. *Elepaio*
- ii* Blades mottled green and purple.....24. *Uahiapele*
- hh* Blades with purplish-black splotching around piko, running into primary veins.
- i* Petioles dark green with distinct whitish edges.....25. *Manapiko*
- ii* Petioles yellowish-green with indistinct pinkish to whitish edges26. *Tahitian*
- gg* Blades not distinctly variegated.
- h* Blades concave and pendant, the margins with numerous fine undulations; petioles slender, widely spreading (Group *Kai*)¹
- i* Petioles diffused with light reddish-brown.....27. *Kai Uliuli*
- ii* Petioles light yellowish-green to whitish.
- j* Petioles white at base.....28. *Kai Ala*
- jj* Petioles pink at base.....29. *Kai Kea*
- hh* Blades and petioles not combining all of the above characters.
- i* Petioles short, usually less than one and one-half times the width of the blades.
- j* Blades cup-shaped and crinkled.
- k* Blades conspicuously cup-shaped; piko noticeably depressed30. *Apuwai*
- kk* Blades only slightly cup-shaped.

¹ The *Kai* group may readily be identified in the field, although it is difficult to evaluate the distinguishing vegetative characters. Probably the slenderness of the petioles, which causes them to curve perceptibly, and the pendant position of the leaf blades give the group its characteristic appearance.

- l* Corm flesh white.....31. **Apu**
- ll* Corm flesh lilac-purple.....32. **Piialii**
- jj* Blades crinkled but not cup-shaped.
 - k* Petioles very dark green with distinct, narrow reddish edges....33. **Paakai**
 - kk* Petioles light green with inconspicuous, light greenish edges....34. **Moana**
- ii* Petioles not short, usually more than one and one-half times the width of the blades.
 - j* Petioles tall, usually more than three times the width of the blades.
 - k* Blades conspicuously concave; lobes overlapping.....35. **Akuugawai**
 - kk* Blades slightly concave; margins with a few large undulations (Group *Lauloa*).
 - l* Petioles purplish-black or dark green suffused with purplish-black almost throughout.
 - m* Petioles purplish-black throughout.
 - n* Petioles with greenish edges.....36. **Lauloa Eleele-omao**
 - nn* Petioles with pinkish edges.....37. **Lauloa Eleele-ula**
 - mm* Petioles dark green heavily suffused with purplish-black.
 - n* Petioles white at base.
 - o* Petioles with blackish edges.....38. **Lauloa Palakea-eleele**
 - oo* Petioles with reddish-pink to almost whitish edges.....
 -39. **Lauloa Palakea-ula**
 - nn* Petioles pink at base.....40. **Lauloa Palakea-papamu**
 - ll* Petioles not purplish-black or heavily suffused with purplish-black.
 - m* Petioles dark green with needle-like black streaks.....
 -41. **Lauloa Palakea-keokeo**
 - mm* Petioles medium green tinged with reddish-purple at apex....
 -42. **Lauloa Keokeo**
 - jj* Petioles intermediate in height, usually from two to two and one-half times the width of the blades.
 - k* Petioles highly colored over three-fourths their length.
 - l* Petioles with blackish hue.
 - m* Corm flesh lilac-purple (Group *Eleele*).
 - n* Petioles with narrow reddish edges.....43. **Eleele Makoko**
 - nn* Petioles with narrow brownish to greenish edges.....
 -44. **Eleele Naioea**
 - mm* Corm flesh white.
 - n* Petioles with inconspicuous yellowish-green to light pinkish stripes45. **Manini-owali**
 - nn* Petioles without stripes.
 - o* Petioles blackish almost throughout with indistinct edges
 -46. **Kumu-eleele**
 - oo* Petioles purplish-black shading into yellowish-green at apex, red at edges.....47. **Nawao**

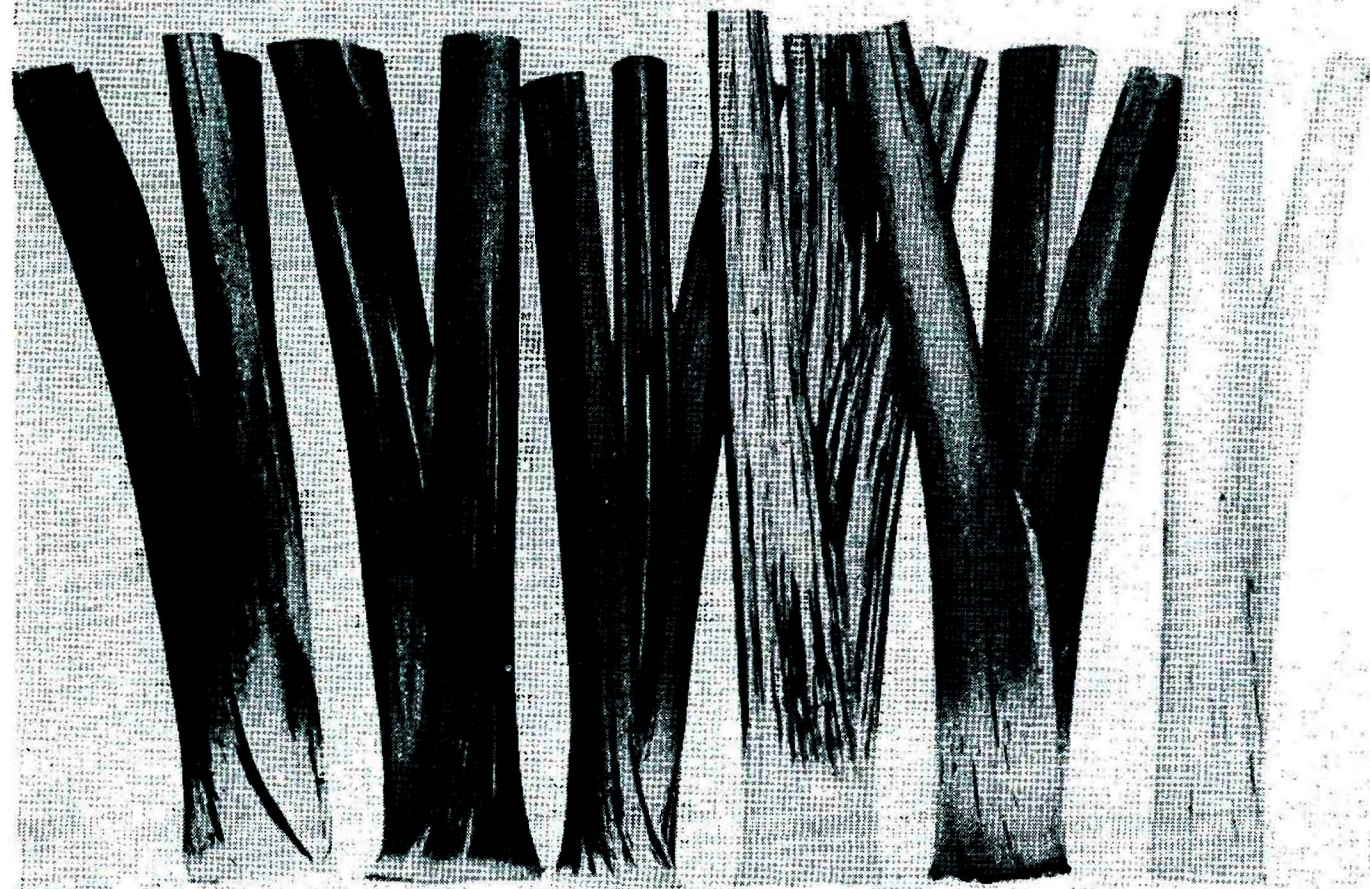


Fig. 1.—A group of taro varieties with striped petioles—1 left to right: *Uahiapele*, *Ula*, *Manini Uluuli*, *Manini Foretore*.

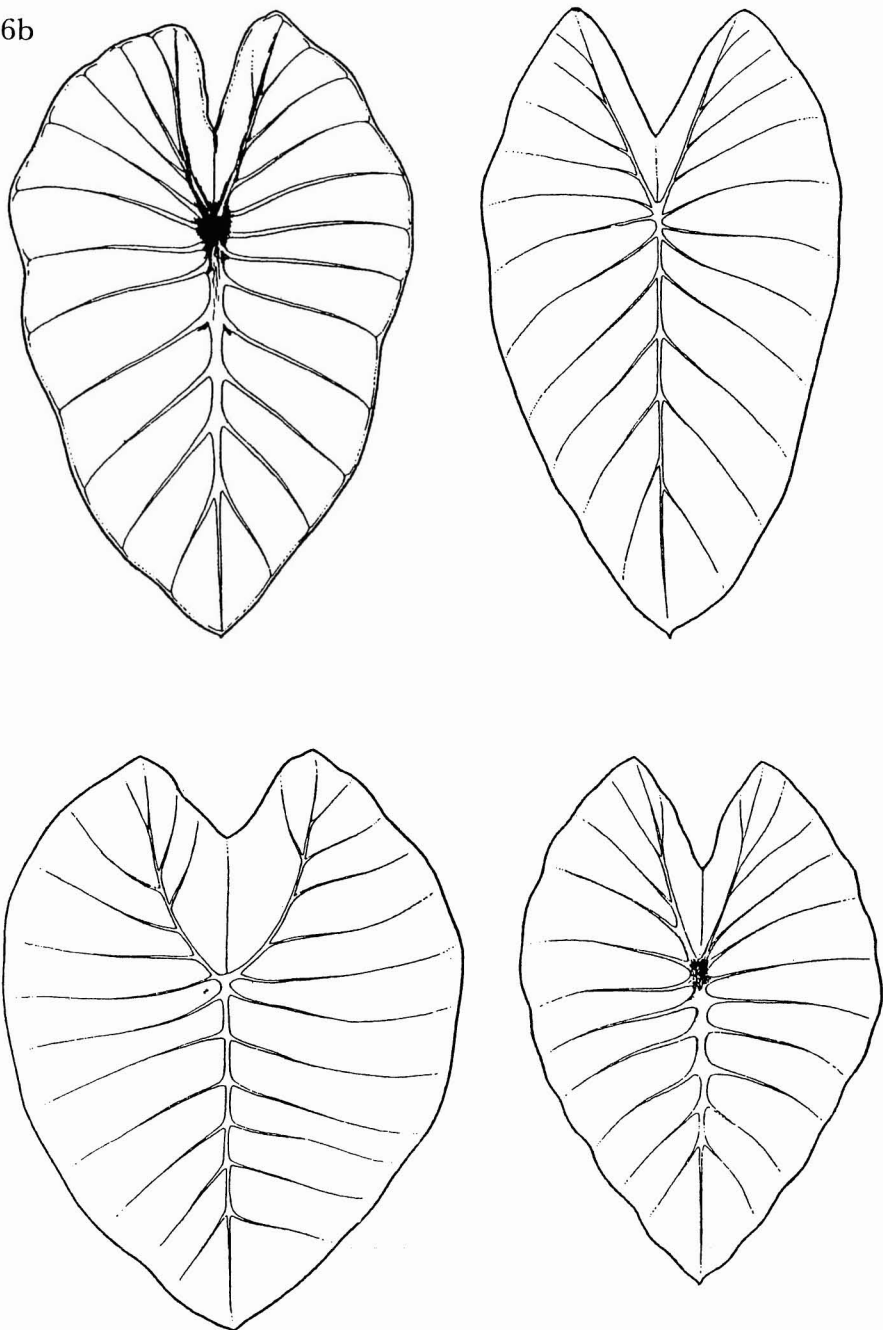


fig. 2.—Types of leaf blades—Upper left: Sagittate leaf blade of *Manapiko*, with narrow sinus and splotched *piko*; upper right: Narrowly sagittate leaf blade of *Mana Uliuli*; lower left: Broadly ovate leaf blade of *Ilinana*, with shallow wide sinus; lower right: Ovate leaf blade of *Ulaula Kumu*.

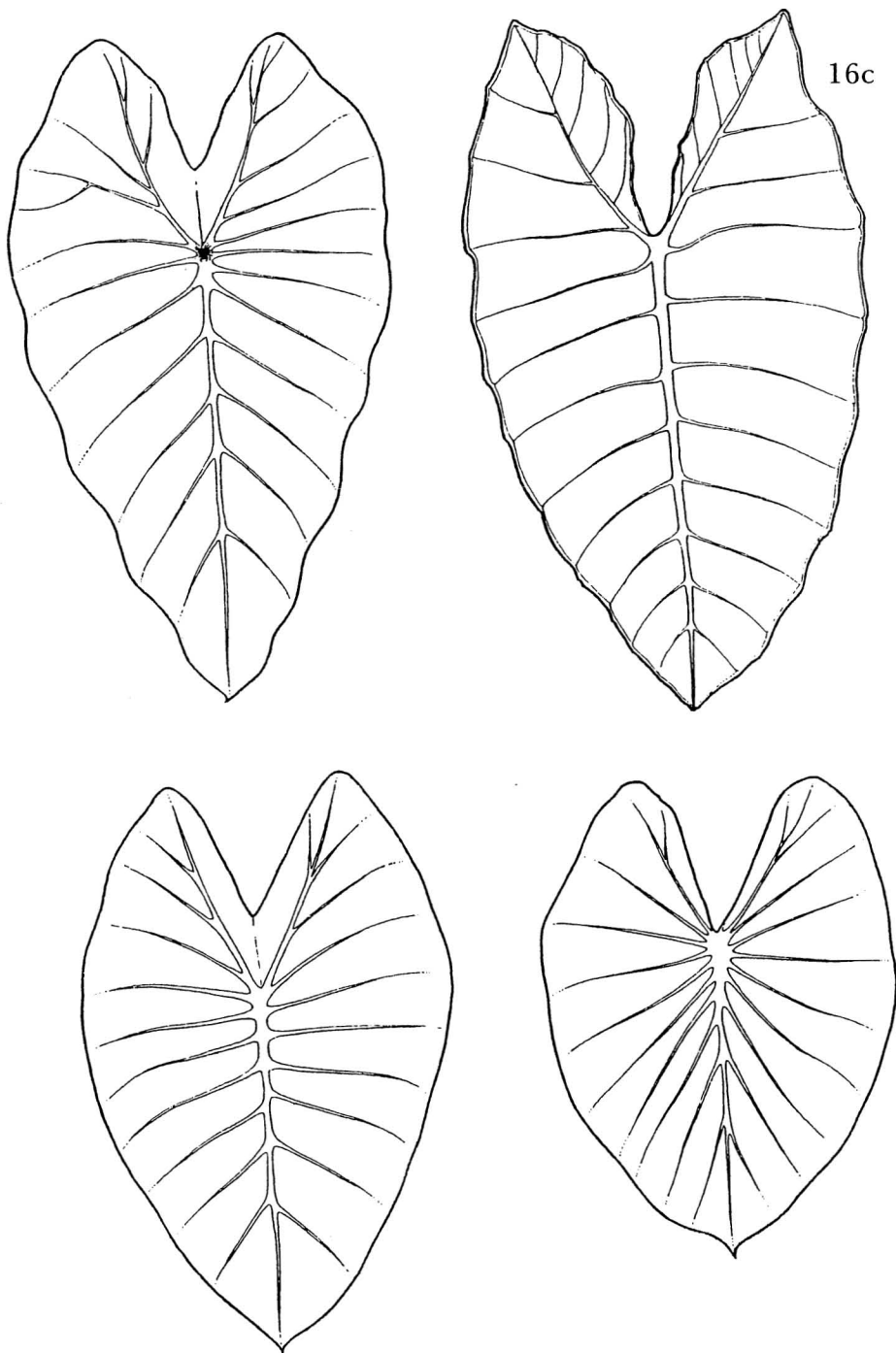


Fig. 2.—Types of leaf blades (continued)—Upper left: Narrowly sagittate leaf blade of *Lauloa Palakea-papamu*, with a few large undulations; upper right: Sagittate leaf blade of a *yautia* variety, with the characteristic Y-shaped sinus; lower left: Sagittate leaf blade of *Lchua Maoli*; lower right: Ovate leaf blade of *Piko Uliuli*, with sinus cut to the *piko*.

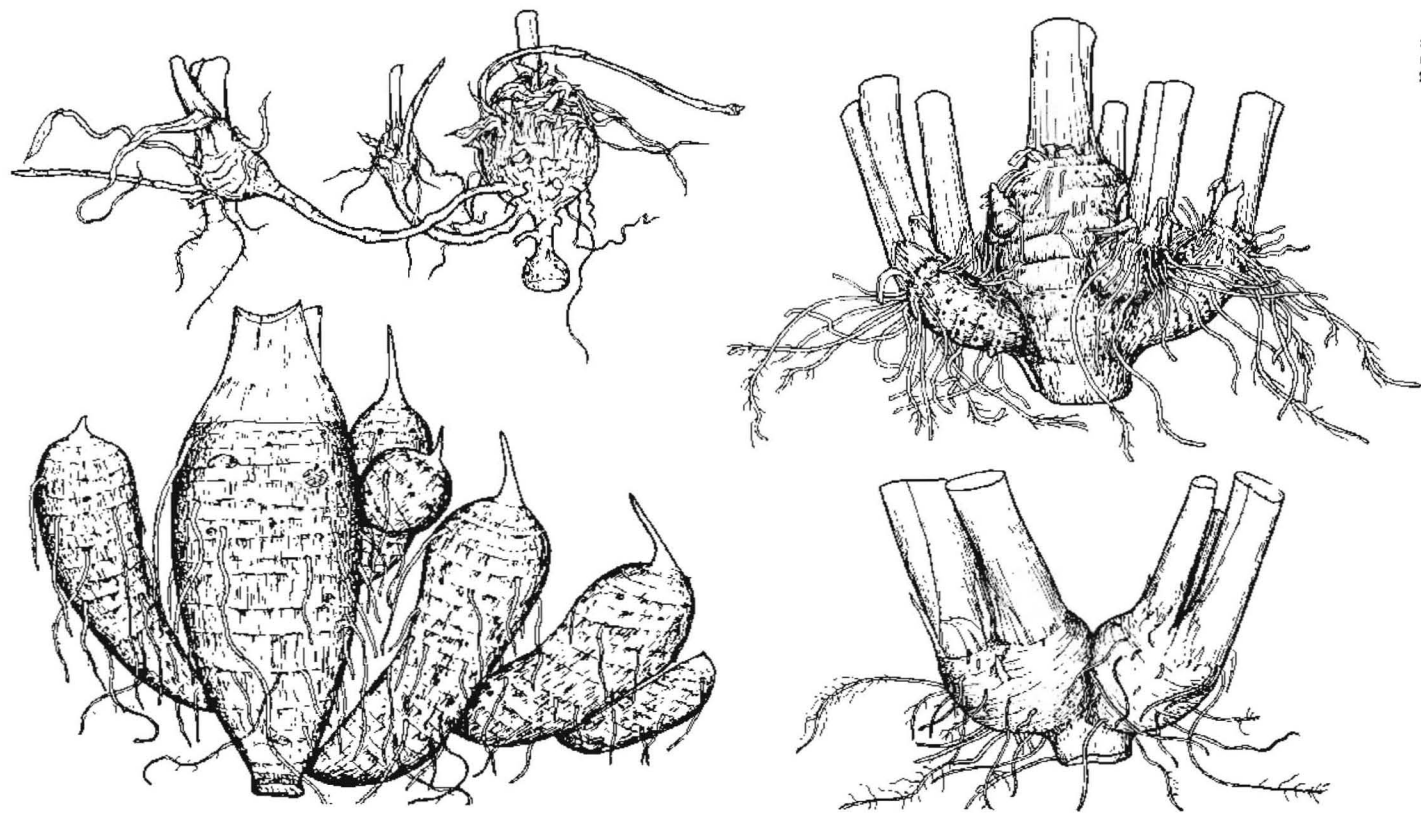


Fig. 3—Types of vegetative reproduction in taro—Upper left: Oha produced from long slender rhizomes; lower left: Oha with dormant shoots, characteristic of the Japanese varieties (note also the successive generations of oha); upper right: Usual method of production of oha; lower right: Branched corms characteristic of the *Alano* group. Second branching has commenced in the original two branches, thus forming four plants from the original parent corm.

ll Petioles with reddish hue.

m Petioles pink at base (Group *Ulaula*).

n Petioles brilliant light red.....48. *Ulaula Kumu*

nn Petioles deeper red, with inconspicuous stripes.

o Petioles dark reddish-purple with lighter red stripes.....
.....49. *Ulaula Poni*

oo Petioles red to reddish-purple with yellowish-green stripes....
.....50. *Ulaula Moano*

mm Petioles white at base.....51. *Niue-ulaula*

kk Petioles not highly colored over three-fourths their length.

l Petioles prominently striped or streaked.

m Petioles with green and highly colored stripes or streaks.

n Petioles green with reddish-purple or purplish-black stripes.

o Corm flesh lilac-purple.....52. *Oopukai*

oo Corm flesh white (Group *Manini*).

p Petioles dark green with broad purplish-black stripes,
especially near base.....53. *Manini Uliuli*

pp Petioles light green with narrow stripes.

q Petioles with interrupted reddish-purple stripes, more
prominent toward base.....54. *Manini Kea*

qq Petioles with profuse purplish-black stripes.....
.....55. *Manini Toreto*

nn Petioles streaked with pink or red and green on certain portions
only.

o Petioles dark green brilliantly streaked with red at apex and
at base.....56. *Papakolea-koae*

oo Petioles nearly solid pink at base with narrow green stripes,
green above.....57. *Ula*

mm Petioles with light and dark green stripes.

n Petioles conspicuously purplish-black at edges.....58. *Nihopuu*

nn Petioles light pinkish at edges.

o Petioles strongly tinged with reddish-purple on upper third
.....59. *Manini-opelu*

oo Petioles only slightly tinged with purple on upper half..60. *Hinupuaa*

ll Petioles not prominently striped or streaked.

m Petioles colored over about half of length.

n Petioles dark green shaded with reddish-brown, purplish at
apex61. *Niue-uliuli*

nn Petioles light green tinged with reddish-brown on lower half..62. *Ohe*

mm Petioles predominantly green.

n Corm flesh lilac-purple (Group *Lehua*).

o Petioles spreading, light green.

p Petioles with pinkish-lilac edges.....63. *Lehua Maoli*

pp Petioles with broad purplish-black edges.....64. *Lehua Keokeo*

- oo Petioles erect, dark green.
 - p Petioles with narrow, dark reddish to purplish-black edges.....65. **Lehua Eleele**
 - pp Petioles with indistinct reddish to whitish edges.....66. **Lehua Palaii**
- nn Corm flesh white.
 - o Petioles pink at base.
 - p Petioles with flecking near base.
 - q Petioles flecked with light reddish-brown near base, greenish to light purplish near apex.....67. **Apowale**
 - qq Petioles with dark purplish tinge on lower third, with dark reddish-brown flecks near base, reddish at point of attachment to leaf blade.....68. **Wehiwa**
 - pp Petioles without flecking.
 - q Petioles with distinct, broad whitish edges.....69. **Papapueo**
 - qq Petioles with indistinct, narrow pink edges.....70. **Kuoho**
 - oo Petioles white at base.
 - p Petioles with flecking near base.
 - q Petioles with yellowish-green blotches adjacent to narrow reddish edges.....71. **Leo**
 - qq Petioles with conspicuous, broad whitish edges.....72. **Maea**
 - pp Petioles practically self-green.
 - q Petioles erect; blades ovate.....73. **Haokea**
 - qq Petioles spreading; blades sagittate.....74. **Kalalau**

DESCRIPTIONS OF CLASSIFIED
VARIETIES

DESCRIPTIONS OF CLASSIFIED VARIETIES

JAPANESE VARIETIES

The Japanese taros are probably of Asiatic origin, having been introduced, presumably during the latter part of the last century, by early immigrants from Japan. They are characterized by symmetrically ovoid corms which produce as many as 20 or more cormels, or *oha*. The *oha* begin to develop early in the life of the mother plant, several generations having developed by the time the plant is mature. Except for a few of the oldest ones, the cormels remain dormant, and these dormant cormels are marketed.

The Japanese taros differ markedly from the Polynesian taros, more closely resembling the dasheens. They are generally more hardy and disease-resistant, earlier maturing, and heavier yielding; yields of 15 to 20 tons per acre of salable cormels in 6 to 10 months are not unusual. They have better keeping qualities, remaining in excellent condition after 2 or more months of storage. Japanese taros are grown almost entirely under nonsubmerged culture, but they are usually irrigated. The dormant *oha* are used for planting material whereas with the Polynesian varieties the *huli* are used almost exclusively.

The Japanese varieties are not adapted to poi making but are used almost entirely as table taro. The plant is usually less acrid¹ than the Polynesian taros, and the petioles of the young leaves are often cooked as a vegetable.

There are three Japanese varieties in the Territory.

1. Tsurunoko

(*Araimo*)

General characteristics: Short, spreading, moderately stocky, often maturing within 6 months, producing as many as 40 *oha*, mostly dormant; distinguished by light green petioles and divergent petiole sinus.

Petiole: 55 to 80 cm. long, light green with slight light brown flecking near base, white to greenish-white at base, reddish-purple at apex, with inconspicuous reddish edge; sinus widely divergent.

Leaf blade: 35 to 50 cm. long, 25 to 40 cm. wide, 30 to 45 cm. from tip to base of sinus, narrowly ovate, firm-chartaceous, light green with bluish cast; margins finely undulate, the marginal veins often purplish; *piko* yellowish to light purple; lobes obtuse to slightly acute with shallow, wide sinus.

¹ All parts of the taro plant contain small needle-like crystals of calcium oxalate which cause irritation of the throat unless thoroughly cooked. They occur to a marked degree in some varieties but to only a negligible extent in others.

Corm: Flesh white with yellowish fibers; skin white; cormels about 3 to 5 cm. in diameter.

Origin, and derivation of name: Probably native of Japan; *Tsurumoko* refers to the prolific production of *oha*.

Distribution: Most important Japanese variety in Hawaii, grown throughout the islands, almost exclusively under upland culture by Japanese gardeners, usually under irrigation alongside other vegetable crops.

Use: Mainly as table taro; to a certain extent for taro sprouts.

Remarks: Parent corms are discarded because of their pronounced acidity. The *oha* are much smaller than those of the other Japanese varieties and are the only ones which cause irritation. They are pared under water to prevent itching hands. If the cormels develop top growth, they become acrid and are discarded. The popularity of this variety is due primarily to the excellent keeping quality.

2. Akado

(*Ekaeka*)

General characteristics: Medium in height to tall, stiffly erect, stocky, maturing within 10 months, producing more than 20 *oha* which remain dormant for several weeks; outstanding among the Japanese taros because of the vivid petiole coloring.

Petiole: 60 to 90 cm. long, greenish-bronze shading into dark reddish-purple at base and apex, indistinctly edged, curved abruptly at apex so that blade hangs more or less vertically.

Leaf blade: 40 to 55 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, broadly ovate, firm-chartaceous, dark green with bluish cast, often tinged with purple on lower surface when young, with conspicuous purple veins on lower surface; *piko* prominent, purple; lobes acute with shallow, wide sinus.

Corm: Flesh white with yellowish fibers; skin purple; *oha* usually 4 to 6 cm. in diameter.

Origin, and derivation of name: Probably native of Japan; called *Akado* because of coloring of petioles. *Ekaeka*, meaning "dirty reddish," is the name given by the Hawaiians, probably also referring to the petiole coloring.

Distribution: Grown sparingly, almost entirely by Japanese gardeners in small patches, usually under upland culture.

Use: *Oha* used principally as table taro; petiole stalks sometimes sold as greens; sprouts from small *oha* grown in darkness sold in limited amount.

Remarks: The parent corms are edible but an aversion to them exists because of their extreme acidity. This variety is highly resistant to disease. It has the largest *oha* of the Japanese taros and probably has the best quality but is grown only to a limited extent because of its comparatively poor keeping quality.

3. Miyako

General characteristics: Short to medium in height, stiffly erect, moderately stocky, maturing in less than 10 months, producing more than 20 *oha*

which remain dormant for several weeks; distinguished by dark green petioles diffused with reddish brown.

Petiole: 55 to 70 cm. long, dark green slightly diffused with reddish-brown near base and at apex, reddish-brown at edge, a pink ring at base with paler pink for about 3 cm. above, curved at apex so that blade hangs almost vertically.

Leaf blade: 35 to 50 cm. long, 25 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, ovate, firm-chartaceous, dark green with bluish cast; *piko* light to dark purple; lobes wide and obtuse with shallow, wide sinus.

Corm: Flesh white with yellowish fibers; skin white; cormel about 4 to 6 cm. in diameter.

Origin, and derivation of name: Probably native of Japan; the derivation of the name is unknown.

Distribution: Grown in limited amount throughout islands, usually under upland culture.

Use: Chiefly as table taro; stalks and sprouts excellent as greens.

Remarks: Similar in quality and texture to *Akado*.

4. *Iliuaua*

(*Pake*)

General characteristics: Medium in height to tall, well spreading, stocky, maturing within 9 to 12 months, producing from 5 to 10 *oha* which may remain dormant for several weeks; identified by exceedingly large leaf blades, very thick and firm in texture, and conspicuously divergent petiole sinus.

Petiole: 80 to 100 cm. long, light green shading to yellowish on upper third, usually brown or light reddish-purple at apex, indistinctly reddish to whitish at edge, a pink ring at base with lighter pink for 3 to 5 cm. above; sinus distinctly divergent.

Leaf blade: 65 to 80 cm. long, 45 to 60 cm. wide, 55 to 70 cm. from tip to base of sinus, broadly ovate, firm-chartaceous, drooping and often resting on the ground, light green; margins somewhat undulate; *piko* yellowish; veins brown or light reddish-purple on lower surface; lobes obtuse with shallow, very wide sinus.

Corm: Very large, usually weighing over 2 pounds; flesh white faintly tinged with pink, especially near the apex, the fibers yellowish; skin pale pink.

Origin, and derivation of name: Unknown origin; it has been named *Iliuaua* because of the firm tough leaf blades. In Kona, Hawaii, it is sometimes called *Pake*, which means "Chinese."

Distribution: Limited; well adapted to upland culture.

Use: Good table taro; the leaves are esteemed highly for *luau*.

Remarks: It is an outstandingly high yielding variety and is very hardy but because it cannot be made into poi, it is seldom grown. It is apparently more closely related to the Japanese varieties than the Polynesian varieties, especially as regards the corm characters.

5. Bun-long

(*Bun-long-woo*, Chinese)

General characteristics: Tall, well spreading, stocky, maturing within 9 to 12 months, producing from 15 to 20 *oha*; identified by purple corm fibers, conspicuous against whitish corm flesh.

Petiole: 75 to 110 cm. long, dark green slightly tinged with reddish-purple on upper half, conspicuously purple at apex, indistinctly reddish at edge, usually an indistinct pinkish or purplish ring at base with white for 3 to 4 cm. above.

Leaf blade: 50 to 60 cm. long, 35 to 45 cm. wide, 35 to 50 cm. from tip to base of sinus, ovate, drooping, dark green; margins slightly undulate; *piko* large, purple; veins light purple on lower surface; lobes acute with shallow, narrow sinus.

Corm: Flesh white with conspicuous purple fibers; skin cream-colored, occasionally purple along leaf-scar rings.

Origin, and derivation of name: Introduced from China; the Chinese name has been retained.

Distribution: Grown rather widely, primarily under wetland culture, but of little commercial importance.

Use: At the present time a large part of the *luau* sold in the market comes from this variety. The young leaves are considered desirable for *luau* because of their large size, tenderness, and comparative nonacridity. The corms are used as a table taro.

Remarks: This variety has the same corm coloring as Trinidad dasheen.

RHIZOME-PRODUCING TARO VARIETIES

There are two varieties in this category but, aside from the fact that both produce rhizomes, they are apparently not related. The rhizomes are short and thick in one variety and long and slender in the other, but in either case the *oha* are produced by the parent corm at the end of uniform, horizontal, underground stems.

In the short-rhizome variety, the rhizomes are 1 to 1.5 cm. in diameter and 6 to 15 cm. long; the long rhizomes are 15 to 70 cm. long but only 0.3 to 0.5 cm. in diameter.

Commercially, these are the least important of all the taros. They are planted in small areas in only a few localities, as the rhizomes increase the difficulty of cultivation and harvesting without damage to the parent corm or *oha*. The parent corms are also usually smaller than in other Polynesian varieties.

6. Aweu

(*Aweo, Aweoweo, Aweuweu, Mamanweo, Maauweo*)

General characteristics: Medium in height to tall, moderately spreading, maturing within 9 to 12 months, producing from 10 to 15 long, slender rhizomes; distinguished by length of rhizomes.

Petiole: 70 to 105 cm. long, light green often inconspicuously flecked with dark green near base, white at base, with narrow, light purplish to indistinct edge, curved sharply at apex so that blade hangs vertically.

Leaf blade: 40 to 65 cm. long, 25 to 45 cm. wide, 35 to 55 cm. from tip to base of sinus, narrowly ovate, thin in texture, light green; margins slightly undulate; *piko* greenish to faintly purple; lobes acute with shallow, narrow sinus.

Corm: Flesh white with yellowish fibers; skin cream-colored, usually with pink or purple along leaf-scar rings, the outer skin shaggy and fibrous.

Origin, and derivation of name: Native variety; derives its name from shaggy outer skin of corm.

Distribution: Formerly widely distributed in wild state, now scattered along streams and in forests in the mountains.

Use: Good as poi, but not used at present because the corms are usually small; the leaves are used for *luau*.

Remarks: This variety was used by the old Hawaiians for poi only when other food was scarce. The corms are too acrid to be used as table taro unless cooked for a long time. *Aweu* is often called wild taro because of its frequent occurrence in the wild state. The rhizomes, sometimes as long as 70 cm., come so close to the surface that they appear like creeping stolons.

7. Kakakura-ula

(*Kakakura*)

General characteristics: Medium in height to tall, moderately spreading, maturing within 9 to 12 months, producing very early from 6 to 12 short, thick rhizomes; distinguishable by brilliant reddish-purple coloration overlying light and dark green striping on petioles.

Petiole: 75 to 95 cm. long, dark and light green-striped with strong tinge of reddish-purple almost obscuring stripes, indistinctly edged, white at base, curved at apex so that blade hangs almost vertically.

Leaf blade: 45 to 60 cm. long, 30 to 35 cm. wide, 35 to 50 cm. from tip to base of sinus, sagittate, firm-chartaceous, dark green with bluish cast; veins reddish on lower surface; *piko* purple; lobes acute with shallow, wide sinus.

Corm: Flesh white with yellowish fibers; skin cream-colored to white.

Inflorescence: Peduncle striped pink and light brown; spathe 24 to 32 cm. long, the lower tubular portion 4 to 5 cm. long, whitish, flecked or indistinctly striped with pink and light brown, with reddish-purple margins, the upper portion orange with reddish margins, abruptly acute at apex but loosely convolute below, sometimes open near constriction at

maturity; spadix 9 to 11 cm. long, the sterile appendage 7 to 13 mm. long, noticeably constricted, conspicuously acute.

Origin, and derivation of name: Introduced from South Seas; since four varieties were received under the name *Kakakura*, the descriptive suffix "*ula*" has been added to indicate a red *Kakakura*.

Distribution: Limited; the variety has done well at Pensacola Street Station under upland culture.

Use: Primarily as table taro.

Remarks: This variety is one of the most beautiful of all the taros. The predominating impression given by the plant is of the brilliant dark pinkish-red color; on closer examination almost every color of the rainbow may be found on the petiole. This taro might well be propagated as an ornamental plant.

GROUP MANA

The word *mana* means "branching" and refers to the habit of division of the parent corm, which is characteristic of this group. A single parent corm of *Mana Uliuli* may produce seven or more *mana*, or branches; the usual number for the other *Mana* is two or three. Branching takes place with most varieties only when the corms are fairly well matured; under some conditions of growth only a small percentage of the plants produce branches. Probably because of the branching habit, *oha* are produced sparingly and much later than in other taros.

The petioles of the *Mana* are curved sharply at the apex, causing the blade to hang almost vertically. The blades are very narrow, and the primary veins are oblique, giving the impression that they are much more numerous than in the other groups although actually the number is practically the same in all taros. The coloring of the *piko* is also rather unusual in that color splotching extends along the midrib and the main veins of the basal lobes, forming a more or less distinct Y. The *Mana* are usually quite upright in growth, with rather stiffly erect petioles.

The corms of the *Mana* taros have a somewhat dry, mealy, flaky texture when cooked. They are excellent as table taro but usually make very poor poi. The shape of the corms is irregular because of the branching. Most varieties are fairly heavy producers and mature comparatively early, in from 7 to 12 months.

The *Mana* are usually planted under upland culture. They are grown fairly extensively on the island of Hawaii, especially in Kona, Puna, and Kau. *Mana Keokeo* and *Mana Ulu* are the two most popular varieties in this group.

The *Mana* group is one of the largest; eight varieties are represented in the station's plantings, and descriptions of at least two others have been recorded. Commercially, the group is not important since it is little used for poi, but it is probably the most popular taro for the home gardens because of its excellent quality as table taro. The *Mana* and the *Lauloa* taros are used in preference to all others for making the Hawaiian pudding *kulolo*, a combination of grated taro and coconut milk.

8. Mana Ulu

(*Mana Owene*)

General characteristics: Medium in height, slender, erect, maturing within 7 to 12 months, producing two or three branches; distinguished by pinkish-rose color of petioles.

Petiole: 50 to 85 cm. long, pink when young, changing to yellow-green except near base, with narrow, indistinct, light pinkish edge.

Leaf blade: 30 to 50 cm. long, 20 to 30 cm. wide, 20 to 40 cm. from tip to base of sinus, sagittate, vertical, firm-chartaceous, dark green or with bluish cast; *piko* pink or yellowish, the color extending into the main veins of the lobes; lobes acute with deep sinus.

Corm: Flesh yellow with light yellowish fibers; skin yellow.

Origin, and derivation of name: Native variety; called *Ulu* because of the resemblance of the flesh of the corm to the poi made from breadfruit.

Distribution: Found extensively under upland culture in Kona, Puna, and Kau, Hawaii; does well under wetland culture on Kauai.

Use: Mainly as table taro.

Remarks: The orange-yellow flesh of the cooked taro is much more attractive than that of most varieties.

9. Mana Opelu

(*Ala Pipika*)

General characteristics: Medium in height, erect, moderately stocky, maturing within 7 to 12 months, producing two or three branches; distinguished by the yellow corm flesh and heavy reddish-brown flecking on the lower portion of the petiole.

Petiole: 60 to 90 cm. long, pale green prominently flecked with reddish-brown to purplish on the lower portion, with fairly distinct broad pinkish edge, pale pink at base with white ring.

Leaf blade: 20 to 50 cm. long, 20 to 30 cm. wide, 20 to 40 cm. from tip to base of sinus, sagittate, chartaceous, dark green or with bluish cast; *piko* yellowish to reddish; lobes acute with deep sinus.

Corm: Flesh yellow with yellowish fibers; skin cream-colored, occasionally purple along leaf-scar rings.

Origin, and derivation of name: Native variety; named after the fish, *opelu*, because the Hawaiians used the corms as bait.

Distribution: Planted in a few scattered localities on Hawaii and Maui, nearly always under upland culture.

Use: Sparingly as a table taro.

Remarks: According to the old Hawaiians, the fish bait was prepared by cooking and pounding the taro until it could be broken in small pieces. The pounded taro was placed in a small net bag and lowered into the water directly above a large net, previously laid. The taro was released from the bag by a sudden jerk of a cord, and as soon as the school of *opelu* was within the large net, the net was hoisted to the surface.

10. Mana Weo

(Weo)

General characteristics: Medium in height to tall, slender, stiffly erect, maturing within 9 to 12 months, producing two or three branches; distinguished from other *Mana* by conspicuous, dark purplish petiole edges.

Petiole: 75 to 105 cm. long, slender, dark green with conspicuous dark purplish edge, particularly near base, white at base.

Leaf blade: 35 to 50 cm. long, 20 to 30 cm. wide, 25 to 40 cm. from tip to base of sinus, narrowly sagittate, firm-chartaceous, medium green; *piko* yellow; lobes acute with shallow, wide sinus.

Corm: Flesh yellow with light yellowish fibers; skin cream-colored, purple along leaf-scar rings.

Origin, and derivation of name: Introduced from South Seas under the name of *Weo*; having been classed as a *Mana*, the group name was placed before the common name.

Distribution: Limited; little is known as to its adaptability.

Use: A fair table taro.

11. Mana Uliuli

(Yellow)

General characteristics: Medium in height, erect, moderately stocky, maturing within 9 to 12 months; the most striking character is prolific branching, as many as ten branches often being produced.

Petiole: 70 to 95 cm. long, olive-green tinged with reddish-brown and pink, the latter pronounced near base, lilac-purple at apex, with a broad, light pink to whitish edge, white at base with lilac-pink for 1 to 2 cm. above.

Leaf blade: 35 to 45 cm. long, 20 to 30 cm. wide, 25 to 35 cm. from tip to base of sinus, vertical, firm-chartaceous, sagittate, dark green; *piko* yellowish; lobes acute with wide sinus.

Corm: Flesh yellow with light yellowish fibers; skin cream-colored, dark purple along leaf-scar rings.

Inflorescence: Produced rather profusely; peduncle light green flecked with reddish-brown; spathe small, delicate, narrow, 12 to 16 cm. long, the lower tubular portion 2 to 2.5 cm. long, light green, the upper portion tightly rolled, light yellow; spadix rather delicate, 6 to 9 cm. long, the sterile appendage 4 to 8 mm. long.

Origin, and derivation of name: Introduced from South Seas under the name "Yellow," which referred to the color of the corm flesh; it has since been classified as a *Mana* taro and given the descriptive name *Uliuli* because of the dark olive-green petioles.

Distribution: Limited; grown primarily under upland culture.

Use: Makes good poi of distinctly yellow color.

Remarks: Because of excessive branching, the shape of the corms is very irregular. This is probably the only South Sea introduction desirable for poi. The corms are similar to those of the *Kai* group, being tough and rubbery when cooked.

12. *Mana Ulaula*

(*Mana Ha Ulaula*)

General characteristics: Medium in height to tall, slender, erect, maturing within 9 to 12 months, producing two or three branches; readily identified by purplish-red flecking along the entire petiole, with almost complete absence of green coloration.

Petiole: 70 to 90 cm. tall, slender, slightly curved at apex, flecked with purplish-red, almost lacking in green, with narrow reddish edge, a dark reddish-purple ring at base with lilac-pink for about 3 cm. above.

Leaf blade: 40 to 50 cm. long, 30 to 35 cm. wide, 35 to 45 cm. from tip to base of sinus, ovate, thin in texture, light green; margins slightly undulate; *piko* small, purple; veins purplish on lower surface of lobes; lobes acute with narrow sinus.

Corm: Flesh white tinged with pink, especially near apex, with yellowish fibers; skin dark lilac-pink.

Inflorescence: Peduncle light purplish flecked with dark reddish-purple areas at base and above constriction; spathe 14 to 17 cm. long, the lower tubular portion about 3 cm. long, light purplish flecked with dark reddish-purple at base and at constriction, the upper portion yellow, tightly rolled; spadix 4 to 5 cm. long, slender, the sterile appendage 5 to 6 mm. long.

Origin and derivation of name: Native variety; *Ulaula* refers to purplish-red-flecked petioles.

Distribution: Comparatively rare; planted in a few scattered localities on Hawaii and Maui, nearly always under upland culture.

Use: Mainly as table taro for home use.

13. *Mana Lau loa*

General characteristics: Medium in height to tall, stiffly erect, maturing within 9 to 12 months, producing two or three branches; characterized by large, somewhat ovate leaf blades and dark green petioles with dark brownish-purple on lower portion.

Petiole: 80 to 90 cm. long, dark green tinged with brownish-purple, dark brownish-purple on basal third, fairly broadly edged with pink to whitish, a dark reddish-purple ring at base with lilac-pink-flecked area for 1 to 3 cm. above.

Leaf blade: 45 to 50 cm. long, 35 to 40 cm. wide, 35 to 45 cm. from tip to

base of sinus, ovate, thin in texture, medium green; margins undulate; *piko* purplish; lobes obtuse, sometimes overlapping, with narrow sinus.

Corm: Flesh white with pink apex and yellowish fibers; skin pinkish-lilac to purple.

Origin, and derivation of name: Native variety; *Lauloa* refers to large leaves.

Distribution: Limited; grown primarily under upland culture.

Use: Chiefly as table taro.

14. Mana Keokeo

(*Mana Kea*)

General characteristics: Medium in height, erect, maturing within 7 to 12 months, producing two or three branches; characterized by dark green petioles with distinct pinkish-red edges.

Petiole: 60 to 85 cm. long, dark green, distinctly pinkish-red at edge, white at base.

Leaf blade: 40 to 55 cm. long, 20 to 40 cm. wide, 30 to 40 cm. from tip to base of sinus, ovate, thin in texture, medium green; margins undulate; *piko* small, yellowish; lobes obtuse, often overlapping, with narrow sinus.

Corm: Flesh chalky white with yellowish fibers; skin white, light lilac-pink to purple at leaf scars.

Origin, and derivation of name: Native variety; *Keokeo* refers to white corm flesh and white color at base of petiole.

Distribution: Grown extensively at Kona, Hawaii, almost exclusively under upland culture.

Use: Mainly as table taro; one of the favorite varieties for making *kulolo*.

Remarks: This is probably the most popular of the *Mana*, due to its large corms and ability to produce good yields even under adverse conditions.

15. Mana Kukuluhema

(*Manua*)

General characteristics: Short to medium in height, moderately spreading, maturing within 9 to 12 months, producing two or three branches; differentiated from *Mana Keokeo* by lighter petioles and whitish rather than light lilac-pink or purple leaf-scar rings of corms.

Petiole: 50 to 70 cm. long, pale green, often with light brownish fleckings near base and along margins, pink at edge, purplish at apex, white at base.

Leaf blade: 40 to 45 cm. long, 30 to 35 cm. wide, 30 to 35 cm. from tip to base of sinus, ovate, firm-chartaceous, medium green; margins slightly revolute; *piko* yellowish to light purple; lobes acute with narrow sinus.

Corm: Flesh chalky white with conspicuous yellow fibers; skin white.

Inflorescence: Peduncle whitish; spathe 21 to 24 cm. long, the lower tubular portion 3 to 4 cm. long, light green, the upper portion yellow, tightly rolled; spadix 7 to 8 cm. long, the sterile appendage 4 to 5 mm. long.

Origin, and derivation of name: Introduced from Samoa under the name *Manua*. Because of the close similarity between *Mana* and *Manua*, the Hawaiian *Kukuluhema*, meaning "south," has been substituted for *Manua*.

Distribution: Very little known.

Use: A fair table taro.

GROUP PIKO

The group *Piko* is comprised of seven varieties, in all of which the sinus of the leaf blade is cut to the point of attachment to the petiole, this point of juncture being called the *piko*, or navel, of the taro. Another unusual feature of the *Piko* taros is the presence of a persistent ridge on the inner surface of the petiole above its sinus. These two characters are found only in this group and seem to be consistently linked. The plants are medium in height, erect, and compact in growth, with stiffly erect petioles and more or less horizontal blades. The leaves are comparatively small and usually ovate in shape. The group produces *oha* more freely than most other varieties.

This is the most natural grouping of the taros as all the members exhibit close relationship. Most are rather late maturing, being harvested usually about 12 to 15 or sometimes as long as 18 months after planting. They are the hardest group and, at the present time, are the most common of the so-called wetland taros. They make their best growth in the cooler sections of the islands with an abundance of fresh cool mountain water for flooding the taro patches. They are by all odds the most important of the commercial taros and their popularity is steadily increasing, probably due more to their comparative resistance to root rot than to any other single factor. All are known to make good poi. They are grown extensively throughout the islands, but are especially popular on the island of Oahu. *Piko Kea* and *Piko Uliuli* are the two most important varieties in this group.

16. *Piko Lehua-apei*

(*Lchua Apei*)

General characteristics: Medium in height, erect, moderately stocky, maturing within 9 to 12 months, producing from 5 to 10 *oha*; distinguished from other *Piko* varieties by outgrowths of dark green crinkled tissue on lower surface of leaf blade.

Petiole: 60 to 95 cm. long, yellowish green with faint pinkish cast, usually faintly red at edge, a pink ring at base with pale pink for 3 to 4 cm. above.

Leaf blade: 40 to 60 cm. long, 25 to 35 cm. wide, 25 to 40 cm. from tip to base of sinus, sagittate, tapering to a sharp point, concave, firm-chartaceous, dark green with pinkish cast when young; margins decidedly undulate; lobes acute with outgrowths of dark green crinkled tissues on lower surface, the sinus deep and wide.

Corm: Flesh lilac-purple with light purple fibers; skin pink.

Origin, and derivation of name: Native variety; generally known as *Lehua Apei* because of lilac corm flesh, but as the basal lobes are clearly cut to the *piko* it has been grouped with the *Piko* varieties and the name *Piko Lehua-apei* has been adopted.

Distribution: Found occasionally in wetland patches with *Piko Kea* and *Piko Uliuli*.

Use: Popular for red poi, some of the so-called *Lehua* red poi being made from this variety, especially on Oahu; the leaves are good for *luau*.

17. Piko Ulaula

(*Haehae Ulaula*)

General characteristics: Medium in height, erect, moderately stocky, maturing within 12 to 15 months, producing from 5 to 10 *oha*; distinguished from *Piko Lehua-apei* by lack of crinkled tissue on leaf blade and from other *Piko* varieties by the lilac-purple corm flesh.

Petiole: 75 to 100 cm. long, dark green with dark brown shading near base and a narrow reddish-purple edge, a dark reddish-purple ring at base with lighter reddish-purple-flecked area for 3 to 5 cm. above.

Leaf blade: 35 to 50 cm. long, 25 to 35 cm. wide, 25 to 40 cm. from tip to base of sinus, sagittate, chartaceous, dark green with bluish cast; lobes acute with narrow sinus.

Corm: Flesh lilac-purple with dark lilac-purple fibers; skin dark lilac-pink.

Origin, and derivation of name: Native variety; *Ulaula*, meaning reddish, refers to pink corms which make "red" poi.

Distribution: Apparently rare; has done well at Pensacola Branch Station under upland culture.

Use: Makes red poi of good quality.

18. Piko Kea

General characteristics: Medium in height, erect, moderately stocky, maturing within 15 to 18 months, producing from 5 to 10 *oha*; distinguished by light green petioles and pinkish base.

Petiole: 60 to 100 cm. long, light green, pinkish-red at edge, usually with adjacent dark green blotches especially near base, a pink ring at base with light pink for 3 to 4 cm. above.

Leaf blade: 30 to 45 cm. long, 25 to 35 cm. wide, 20 to 35 cm. from base of sinus to tip, ovate, nearly horizontal, light to dark green; *piko* whitish; lobes narrow and obtuse with narrow sinus.

Corm: Flesh white with pinkish apex and yellowish fibers; skin pale pink.

Inflorescence: Peduncle green; spathe 15 to 20 cm. long, the lower tubular constricted portion 3 to 4.5 cm. long, green, usually tinged with red at base, usually partially opened exposing ovaries, the upper portion deep yellow; spadix 5 to 6 cm. long, the sterile appendage about 4 mm. long.

Origin, and derivation of name: Native variety; *Kea* refers to the light green coloring of the petioles.



Fig. 4.—Top: A general view of commercial taro grown under wetland culture (note the embankments used for flooding the petioles; middle: *Iliuana*, a variety of taro with unusually large leaf blades and corms which, although the best yielder, is seldom grown because it cannot be made into poi; lower left: *Lauloa Palakea-eleele*, with large, long leaf blades with a few large undulations and the tall, erect petioles characteristic of the group *Lauloa*; lower right: *Apuwai*, characterized by short, stocky growth and more or less horizontal leaf blades which are crinkled and cup-shaped.

Distribution: Widely planted on all the islands, almost exclusively in wetland patches; although grown extensively in the lowlands, it appears to thrive better up toward the mountains where the water is cooler.

Use: A very important poi taro, particularly on Oahu.

Remarks: The corms have fairly firm texture and will absorb more water, in the preparation of *paiai*,¹ than most varieties. The poi is light bluish-grey in color and of very good quality.

19. Piko Keokeo

(*Haehae Keokeo, Uaua Keokeo*)

General characteristics: Closely resembles *Piko Kea*, but maturing within 12 to 15 months; differs in having white petiole base and chalky white corm flesh.

Petiole: 60 to 95 cm. long, light green, pinkish red at edge, usually with adjacent dark green blotches especially near base, white at base.

Leaf blade: 30 to 45 cm. long, 25 to 35 cm. wide, 20 to 35 cm. from tip to base of sinus, ovate, pendant, light to dark green; *piko* whitish; lobes narrow and obtuse with narrow sinus.

Corm: Flesh chalky white with light yellow fibers; skin cream-colored.

Origin, and derivation of name: Native variety; *Keokeo*, meaning light or white, refers to the corm flesh.

Distribution: Mainly as a mixture among other *Piko* varieties.

Use: Makes fairly good poi.

20. Piko Uaua

(*Uaua Piko*)

General characteristics: Medium in height, erect, moderately stocky, maturing in 12 to 15 months, producing from 5 to 10 *oha*; distinguished from other *Piko* by dark green petioles and pinkish base.

Petiole: 65 to 100 cm. long, dark green, usually edged narrowly with dark pink or red, light pink at base with pink ring.

Leaf blade: 30 to 45 cm. long, 25 to 35 cm. wide, 20 to 35 cm. from tip to base of sinus, ovate, nearly horizontal, chartaceous, light to dark green; *piko* whitish; lobes obtuse with narrow sinus.

Corm: Flesh white with slight pinkish tinge near apex and yellowish fibers; skin cream-colored.

Origin, and derivation of name: Native variety; the descriptive name *Uaua*, meaning "tough," indicates that the extensive root system makes this variety difficult to pull under wetland culture.

Distribution: Throughout the islands under both upland and wetland cultures; grown most extensively in Waipio Valley, Hawaii, under wetland culture.

Use: Makes poi of good quality.

Remarks: This is one of the hardiest of the *Piko* taros, and probably the only one grown to any extent under upland culture.

¹In the production of *paiai*, the cooked corms are ground and water is added to bring the mass to a certain consistency. Tough, rubbery, cooked taro, while difficult to pound under the older methods of preparation, is regarded as desirable because of the good quality of the resulting poi. The yields of *paiai* and of poi, which is simply a diluted form of *paiai*, depend upon the amount of water the taro will absorb during grinding and that added later.

21. *Piko Uliuli**(Haehae, Piko Uli, Waianae)*

General characteristics: Medium in height, erect, moderately stocky, maturing within 12 to 15 months, producing from 5 to 10 *oha*; resembles *Piko Uaua* very closely, but the petiole is white at base rather than pink.

Petiole: 60 to 100 cm. long, dark green, usually edged narrowly with dark pink or red, white at base.

Leaf blade: 30 to 45 cm. long, 25 to 35 cm. wide, 20 to 35 cm. from tip to base of sinus, ovate, nearly horizontal, firm-chartaceous, light to dark green; *piko* whitish; lobes obtuse with narrow sinus.

Corm: Flesh chalky white with yellowish fibers; skin cream-colored.

Inflorescence: Peduncle green; spathe 15 to 20 cm. long, the lower tubular constricted portion 3 to 4.5 cm. long, green, usually tinged with red at base, usually open partially exposing the ovaries, the upper portion deep yellow; spadix 5 to 6 cm. long, the sterile appendage about 4 mm. long.

Origin, and derivation of name: Native variety; derives descriptive name, *Uliuli*, from dark green petioles.

Distribution: Widely planted on all the islands, especially Oahu, almost exclusively under wetland culture.

Use: A very important commercial poi taro.

Remarks: This variety used to be grown extensively at Kaanapali, Maui, a region of strong winds, which caused the leaves to be torn—hence the local name *Haehae*. It is considered hardier than *Piko Kea* and shows less rot, especially in the lowlands where the irrigation water is warmer.

22. *Piko Eleele**(Haehae Eleele, Helemauna, Ipuolono, Makaopio)*

General characteristics: Medium in height, erect, moderately stocky, maturing within 12 to 15 months, producing from 5 to 10 *oha*; distinguished from other *Piko* taros by dark purplish petioles.

Petiole: 55 to 85 cm. long, reddish-brown to purplish, especially on lower half, with indistinct or narrow reddish edge and usually with adjacent dark green blotches, particularly near the base, a brilliant dark pink ring at base with light pink area flecked with light reddish-brown for 3 to 4 cm. above.

Leaf blade: 35 to 45 cm. long, 20 to 30 cm. wide, 20 to 30 cm. from tip to base of sinus, horizontal, broadly sagittate tapering abruptly to sharp point, fairly firm in texture, dark green; *piko* light green to light pinkish; lobes obtuse with narrow sinus.

Corm: Flesh white with pinkish tinge, especially near apex, and yellowish fibers; skin pale salmon-pink, often purple along leaf-scar rings.

Inflorescence: Peduncle reddish-purple; spathe 15 to 20 cm. long, the lower tubular constricted portion 3 to 4.5 cm. long, green, tinged with red at base, usually partially open exposing the ovaries, the upper portion deep yellow; spadix 5 to 6 cm. long, the sterile appendage about 4 mm. long.

Origin, and derivation of name: Native variety; called *Eleele* because of its dark petioles.

Distribution: Grown either as wetland or upland taro; planted quite extensively at Kona, Hawaii, under upland culture.

Use: A common poi taro; also considered an excellent table variety, and the leaves are popular for *luau*.

Remarks: *Piko Eleele* does better in the upper valley areas where rainfall is abundant and the water cool; at low elevations in water which has become warm by passing through several paddies a soft starch is produced which rots readily. The name *Piko Eleele* is sometimes confused with *Pikoele*; the latter is not a *Piko* taro.

23. Elepaio

General characteristics: Short to medium in height, moderately spreading, stocky, maturing within 7 to 12 months, producing from 5 to 10 *oha*; readily identified by green- and white-mottled leaves.

Petiole: 50 to 75 cm. long, fairly rigid, green- and white-striped, often slightly tinged with reddish-brown, especially on lower half, yellowish at apex, pink at edge, a pale pink ring at base with white for 3 to 4 cm. above.

Leaf blade: 35 to 50 cm. long, 25 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, ovate, fairly firm in texture, slightly concave, green- and white-mottled; margins undulate; *piko* small, yellowish; lobes acute with very narrow sinus.

Corm: Flesh white with yellowish fibers; skin cream-colored.

Inflorescence: Peduncle green- and white-mottled; spathe 17.5 to 18 cm. long, the lower tubular portion about 2.5 cm. long, green- and white-mottled, the upper portion yellow mottled with white, slightly open near constriction; spadix 6 cm. long, the sterile appendage 7 to 8 mm. long.

Origin, and derivation of name: Native variety; according to some natives it grew wild near the forest where the bird *Elepaio* made its home, but others maintain that this taro was formerly planted at dawn when the *Elepaio* was singing.

Distribution: Found mainly on Hawaii in small patches, principally under upland culture; of little importance because of its low yield.

Use: Makes good poi of a light gray color.

Remarks: This variety displays true variegation, and the striking green and white mottling of the leaves makes the plant very attractive. The amount of white area varies to a certain extent, according to environmental conditions.

24. Uahiapele

(*Hiwa, Pau O Hiiaka, Ualehu, Uwahiapele*)

General characteristics: Medium in height, slender, moderately spreading, maturing in about 12 months, producing fairly numerous *oha* (usually over 10); readily identified by mottled green and purplish leaf blades.

Petiole: 70 to 85 cm. long, slender, lilac-purple flecked with streaks of purplish-black especially on lower half, distinctly purplish-black at edge,

white at base, the apex whitish on outer surface and reddish-purple on inner.

Leaf blade: 40 to 50 cm. long, 25 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, sagittate, fairly concave, conspicuously mottled with green and dark purple especially on lower surface; margins quite undulate; *piko* purple; veins light reddish-purple on lower surface of lobes; lobes obtuse to slightly acute with deep, narrow sinus.

Corm: Flesh white with yellowish fibers; skin white with pink or light to dark purple leaf-scar rings.

Inflorescence: Peduncle lilac-purple with occasional dark purple streaks; spathe 18 to 24 cm. long, the lower tubular portion 3 to 4 cm. long, green with lilac-purple flecks and a few purple streaks, the upper portion yellow, tightly rolled or sometimes open near constriction; spadix 6 cm. long, the sterile appendage 6 mm. long.

Origin, and derivation of name: Native variety; called *Uhiapele*, or "smoke of *Pele*" because of smoky appearance of purplish- and green-mottled leaves and smoky gray poi made from the corms.

Distribution: Formerly grown to some extent at Ewa, Oahu, under wetland culture, but at present found most commonly on Hawaii and occasionally on Kauai, under upland culture.

Use: Makes a high-quality smoky-gray poi; formerly highly prized for medicinal purposes and as an offering to the gods.

Remarks: This variety has many of the characteristics of the *Kai* group, in particular the tough, rubbery consistency of the cooked corm.

25. Manapiko

General characteristics: Medium in height, erect, stocky, maturing within 12 to 15 months, producing from 2 to 5 *oha*; recognized by purplish blotching on *piko* extending along midrib and on primary veins of the lobes, forming a more or less distinct Y.

Petiole: 65 to 80 cm. long, dark green, conspicuously whitish at edge, dark reddish-purple at apex, white for 3 to 4 cm. above base, abruptly curved at apex.

Leaf blade: 35 to 50 cm. long, 25 to 35 cm. wide, 25 to 40 cm. from tip to base of sinus, sagittate, vertical, dark green with bluish cast, a dark purple streak on lower surface running from base of sinus to *piko*; margins slightly undulate; *piko* conspicuously dark purple, blotched, the color extending along midrib and veins of lobes; lobes acute with narrow sinus.

Corm: Flesh white with yellowish fibers; skin cream-colored, occasionally faintly pink along leaf-scar rings.

Origin, and derivation of name: Native variety; the name *Manapiko* refers to the branching coloration of the *piko*.

Distribution: Rare variety.

Use: Fair table taro.

Remarks: This variety does not belong to either the *Mana* or the *Piko* group as the name might imply.

26. Tahitian

General characteristics: Medium in height, moderately spreading, stocky, maturing within 9 to 12 months, producing from 2 to 5 *oha*; similar to *Manapiko* but with much lighter petioles and leaf blades.

Petiole: 70 to 85 cm. long, rigid, light yellowish-green, indistinctly pale pinkish to whitish at edge, light reddish-purple at apex, white for 3 to 4 cm. above base, abruptly curved at apex.

Leaf blade: 45 to 55 cm. long, 30 to 35 cm. wide, 35 to 40 cm. from tip to base of sinus, sagittate, vertical, light green; margins slightly undulate; *piko* conspicuously blotched with dark purple, running into veins; veins reddish on lower surface of lobes; lobes acute with deep, wide sinus.

Corm: Flesh white with yellowish fibers; skin cream-colored.

Inflorescence: Peduncle light green; spathe about 30 cm. long, the lower tubular portion about 5 cm. long, light green with purplish area at base, the upper portion yellow, rather widely open at base upon maturity.

Origin, and derivation of name: Introduced by Wilder from Tahiti; no name has been found for this variety so it has merely been called "Tahitian."

Distribution: Little-known variety of limited distribution.

Use: Mainly as a table taro.

GROUP KAI

This group, comprising three varieties, is distinguished by the concave, pendant blades with distinct, finely undulating margins, and by the tough rubbery texture of the cooked corms. The time of cooking is often twice as long as for other varieties. A fragrant odor (*ala*) is usually emitted when the corms are cooked: hence the name *Ala* is sometimes used, instead of *Kai*, for this group. It is difficult to make poi from the *Kai* taros by the old Hawaiian method of hand pounding the cooked corms on a poi board, and even in the commercial poi factories, where machines are used for grinding the corms, the *Kai* taros generally must be run through the machine twice before the poi is satisfactory. However, they give a high yield of *paiai*.

The *Kai*, the *Piko*, and the *Lehua* are the three most important groups of commercial taros. They are used almost exclusively for poi making, and are almost invariably grown under wetland culture. The *Kai* are very popular on Kauai and are planted in several localities on Oahu. Observations seem to indicate that they are more tolerant of alkaline conditions than any other group, and of stagnant water. They are also tolerant of deep or soft patches whereas most varieties require a firm, relatively shallow soil, and there is evidence that *Kai* are more resistant to soft rot.

Although this group is widely planted and the corms have important and characteristic qualities, the *Kai* have no outstanding surface characters by which they may be readily identified, especially if the specimen to be identified has been pulled from the field. Yet any experienced taro grower can readily recognize a *Kai* as he walks through a planting. The most outstanding feature seems to be the pendant position of the leaves. This apparently results from the slenderness of the petiole, especially above the petiole sinus, which causes the petiole to curve perceptibly and gives to the plant a generally widespread appearance.

27. Kai Uliuli

(*Kai Eleele*)

General characteristics: Medium in height, well spreading, maturing within 8 to 12 months, producing from 5 to 10 *oha*; identified by light reddish-brown tinge of petioles.

Petiole: 70 to 85 cm. long, diffused with light reddish-brown, conspicuously whitish to yellowish at edge, a dark reddish-purple ring at base with light pink for about 3 cm. above.

Leaf blade: 45 to 55 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, narrowly ovate, concave, pendant, giving the impression of being slightly wilted, dark green; margins with numerous fine undulations; *piko* light green to faint purplish; veins light green on upper surface, usually light reddish-purple on lower; lobes obtuse to slightly acute with wide, fairly deep sinus.

Corm: Flesh white tinged with lilac-pink, especially near apex; skin pale pinkish-lilac.

Inflorescence: Peduncle yellowish flecked profusely with purple; spathe 18 to 20 cm. long, the lower tubular portion about 4 cm. long, yellowish-green with slight purplish tinge, the upper portion deep yellow, open near constriction at maturity and tightly rolled above; spadix 7 to 8 cm. long, the sterile appendage 4 mm. long.

Origin, and derivation of name: Native variety; the name *Uliuli* refers to the darkish color of the petioles.

Distribution: Well-known and distributed throughout the Territory, particularly on Oahu and Kauai. It is usually grown in areas which are inclined to be swampy or in deep patches.

Use: Almost exclusively for commercial poi; the poi is dark bluish-gray and is of excellent quality.

28. Kai Ala

(*Ala, Ala Keokeo*)

General characteristics: Medium in height, well spreading, maturing within 8 to 12 months, producing from 5 to 10 *oha*; identified by widely spreading, light yellowish-green to almost whitish petioles.

Petiole: 75 to 90 cm. long, light yellowish-green to whitish, distinctly reddish at edge, brownish at apex, a white or faint cream-colored ring at base with white for about 3 cm. above.

Leaf blade: 45 to 55 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, ovate, concave, pendant, light green; margins with numerous fine undulations, the marginal veins hard and crisp in texture; *piko* yellowish to light brownish; lobes obtuse with narrow sinus.

Corm: Flesh white with yellowish fibers; skin cream-colored.

Inflorescence: Peduncle whitish; spathe 19 to 22 cm. long, the lower constricted portion 3 to 4 cm. long, light green, the upper portion light yellow, somewhat open; spadix 7 to 9 cm. long, the sterile appendage 7 to 10 mm. long.

Origin, and derivation of name: Native variety; the name *Ala* refers to the fragrant odor of the cooked corms, a characteristic common to all varieties of *Kai*.

Distribution: Found only occasionally, almost exclusively under wetland culture, usually associated with *Kai Kea*.

Use: Makes poi of good quality.

29. Kai Kea

(*Ala Kea*)

General characteristics: Medium in height, well spreading, maturing within 8 to 12 months, producing from 5 to 10 *oha*; except for the pinkish flush near the petiole base, it is very similar to *Kai Ala*.

Petiole: 70 to 90 cm. long, light yellowish-green with pink flush particularly conspicuous near base, distinctly reddish at edge, light reddish-purple at apex, a reddish-purple ring at base with lilac-pink for 3 to 5 cm. above.

Leaf blade: 45 to 55 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, ovate, concave, pendant, dark green; margins with numerous fine undulations; veins light green on upper surface, usually light reddish-purple on lower; *piko* small, reddish-purple; lobes obtuse to slightly acute, quite undulate, with fairly deep, narrow sinus.

Corm: Flesh white with pink tinge particularly conspicuous at apex; skin light pink.

Inflorescence: Peduncle light yellowish-green; spathe 18 to 23 cm. long, the lower tubular portion 3 to 4 cm. long, yellowish-green usually with pink tinge and reddish area at base, loosely rolled and occasionally somewhat open, the upper portion yellow, loosely rolled and open near constriction; spadix 6 to 9 cm. long, the sterile appendage 7 to 11 mm. long.

Origin, and derivation of name: Native variety; the name *Kea* refers to the light-colored petioles.

Distribution: Most widely planted variety of the *Kai*, grown throughout the islands but particularly on Kauai and at Waialua, Oahu. Except in a few scattered localities in Hawaii, this taro is grown under wetland culture.

Use: The poi is of excellent quality and was highly esteemed by the Hawaiian chiefs.

30. Apuwai

General characteristics: Short, moderately spreading, very stocky, maturing within 6 to 9 months, producing from 5 to 10 *oha*; readily identified by the cup-shaped, definitely crinkled blades and light self-green petioles.

Petiole: 35 to 50 cm. long, broad at base, thick and rigid, light green with white for 3 to 5 cm. above base.

Leaf blade: 35 to 40 cm. long, 25 to 35 cm. wide, 25 to 30 cm. from tip to base of sinus, horizontal, very crinkled and conspicuously cupped, medium green; *piko* and veins light green; lobes obtuse, distinctly overlapping, with deep, narrow sinus.

Corm: Flesh white with indistinct, yellowish fibers; skin cream-colored.

Inflorescence: Peduncle light green; spathe usually loosely enclosing spadix to base of plant, light green on lower tubular portion, the upper portion 20 to 25 cm. long, light yellow, usually open and ordinarily rolled only at the tip; spadix usually 17 to 20 cm. long, a spongy naked base with the ovulate portion extending along about 8 to 9 cm. and ovaries sparsely arranged on the lower part, the sterile appendage about 1 cm. long.

Origin, and derivation of name: Native variety; it derives its name from the fact that its leaves are shaped like a cup (*apu*) and hold water (*wai*) in the form of dew and rain.

Distribution: Essentially a wetland taro although it is found in a few scattered localities in Kona under upland culture. Formerly it was widely planted, especially in Kohala, Hawaii. It is now sometimes found growing wild in wet places near the woods.

Use: This variety is now grown mainly for its leaves which are highly prized for *luau*. The corm makes good poi of very light color, soft in consistency, and easy to pound and prepare, and also serves as a good table taro.

31. Apu

(*Oapu*)

General characteristics: Short, moderately spreading, stocky, maturing within 6 to 9 months, producing from 10 to 15 *oha*; resembles *Apuwai* very closely, the latter having a more crinkled leaf blade and a deeper-set *piko*.

Petiole: 40 to 60 cm. long, rigid, light green with inconspicuous greenish edge, white at base.

Leaf blade: 45 to 55 cm. long, 35 to 40 cm. wide, 35 to 40 cm. from tip to base of sinus, horizontal, ovate, somewhat cupped, light green; *piko* light green; lobes obtuse, frequently overlapping, with deep, narrow sinus.

Corm: Flesh chalky white with inconspicuous yellowish fibers; skin cream-colored.

Origin, and derivation of name: Native variety; it derives its name from the fact that the leaves are somewhat cup-shaped.

Distribution: A little-known taro at the present time; the only planting found was on Maui.

Use: Sparingly as a table taro.

32. Piialii

(Ahapii, Moiuula, Mokohe)

General characteristics: Short, erect, stocky, maturing within 8 to 12 months, producing from 2 to 5 *oha*; easily distinguished by broad, crinkly blades and short, stocky, dark green petioles tinged with pink.

Petiole: 45 to 65 cm. long, fairly thick and rigid, dark green with pinkish tinge and conspicuous narrow red edge, a reddish-purple ring at base with lilac-pink for 3 to 4 cm. above.

Leaf blade: 45 to 55 cm. long, 30 to 35 cm. wide, 40 to 45 cm. from tip to base of sinus, horizontal, ovate, slightly cupped, crinkled, dark green with light pinkish cast on lower surface; *piko* small, light pinkish to greenish; marginal veins often tinged with red; lobes obtuse with shallow, wide sinus.

Corm: Flesh lilac-purple with darker purple fibers; skin brilliant reddish-purple.

Inflorescence: Peduncle yellowish-green; spathe 26 to 33 cm. long, the lower tubular portion usually 4.5 to 6 cm. or sometimes as much as 9 cm. long, yellowish-green, often tinged with red, the upper portion yellow, usually rather open or loosely rolled; spadix 9 to 12 cm. long, the sterile appendage 1.2 to 2 cm. long.

Origin, and derivation of name: Native variety; the name *Piialii* means "ascending from the *alii*," and refers to the high esteem in which it was held by the chiefs.

Distribution: Essentially a wetland taro although grown to some extent under upland culture in Kona, where it goes under the name *Moiuula*. This variety is one of the most important of the wetland poi taros, and is planted extensively on the windward side of Oahu.

Use: Makes a red poi that is highly prized for flavor and quality.

Remarks: This is one of the oldest varieties grown in the islands, known in the early days of Hawaiian history as one of the royal taros. It was considered particularly desirable as an offering to the gods. The Chinese generally harvest this taro at 12 to 14 months, the Hawaiian growers at 8 to 10 months when the quality is considered better although the total yield is not so great.

33. Paakai

(Launui Paakai)

General characteristics: Short, moderately spreading, stocky, maturing within 9 to 12 months, producing from 5 to 10 *oha*; distinguished by short, stocky growth and dark green petioles with distinct, narrow reddish edges.

Petiole: 45 to 60 cm. long, very dark green with a distinct, narrow reddish edge, white at base.

Leaf blade: 35 to 45 cm. long, 25 to 30 cm. wide, 25 to 35 cm. from tip to base of sinus, narrowly ovate, slightly concave, fairly crinkled, dark green; *piko* light yellowish; lobes acute with wide sinus.

Corm: Flesh white with yellowish fibers; skin cream-colored, sometimes reddish-purple along the leaf-scar rings.

Inflorescence: Peduncle light green; spathe 21 to 24 cm. long, the lower tubular portion 3 to 4 cm. long, loosely rolled, light green with tinge of purple at base, the upper portion deep yellow, open near constriction even when young; spadix 7 to 8 cm. long, the sterile appendage 8 to 9 mm. long.

Origin, and derivation of name: Native variety; *Paakai*, meaning "salt," probably refers to the somewhat salty taste of the poi.

Distribution: Found occasionally on Kauai and in South Kona, Hawaii, usually under upland culture.

Use: Chiefly for poi.

34. Moana

(*Mauna*)

General characteristics: Short, stiffly erect, stocky, maturing within 9 to 12 months, producing from 5 to 10 *oha*; characterized by short, stocky growth, broad, horizontal, crinkled leaves, and light self-green coloring of the petioles.

Petiole: 40 to 55 cm. long, light green with inconspicuous, light greenish edge, a white area for 3 to 5 cm. above base.

Leaf blade: 35 to 50 cm. long, 30 to 40 cm. wide, 30 to 40 cm. from tip to base of sinus, broadly ovate, almost horizontal, somewhat crinkled but not cupped, dark green; *piko* yellowish; lobes acute and usually overlapping, with medium-cut sinus.

Corm: Flesh white with yellowish fibers; skin white to cream-colored.

Inflorescence: Peduncle light green; spathe 22 to 25 cm. long, the lower tubular portion 4 to 5 cm. long, light green, the upper portion light yellow, rather tightly rolled.

Origin, and derivation of name: Native variety; *Moana*, meaning "broad" in Hawaiian, probably refers to the broad, ovate leaf blades.

Distribution: A little-known variety, found in home plots on Maui.

Use: Table taro of excellent quality.

35. Akuugawai

General characteristics: Tall, erect, stocky, maturing within 9 to 12 months, producing from 2 to 5 *oha*; identified by tall, upright, dark green petioles with distinct blackish edges, and horizontal leaf blades.

Petiole: 80 to 95 cm. long, very dark green with indistinct, light green streaks, often slightly tinged with purple, conspicuously blackish at edge, white or greenish-white at base.

Leaf blade: 35 to 45 cm. long, 25 to 30 cm. wide, 35 to 40 cm. from tip to base of sinus, narrowly sagittate, conspicuously concave, horizontal, dark green; *piko* purple; lobes obtuse, overlapping, with narrow sinus.

Corm: Flesh white with yellowish fibers; skin whitish.

Inflorescence: Peduncle dark green with brown flecking at base; spathe 26 to 28 cm. long, the lower tubular portion 4 to 4.5 cm. long, dark green with purple at base and at constriction and sometimes along margins, the upper portion dark yellow; spadix 8.5 to 9 cm. long, the sterile

appendage about 1 cm. long, orange as contrasted to the yellow staminate portion.

Origin, and derivation of name: Introduced from the South Seas by Wilder; the name *Akuugawai*, under which it was introduced, has been retained.

Distribution: Little-known variety of limited distribution.

Use: Good table taro but makes very poor poi.

Remarks: The rank, erect habit of growth is similar to that of the *Lauloa* group.

GROUP LAULOA

The group *Lauloa* is characterized by long petioles and long, sagittate, usually quite undulate blades: hence the name *Lauloa*, meaning large or long leaf. The varieties within this group are nearly identical as to length of petiole and size and shape of the blade. The plants are tall with an erect, compact habit of growth and are the most vigorous of all the taros. They produce *oha* sparingly and mature usually in from 8 to 12 months. The group is represented by seven varieties in the station's plantings, and an eighth has been described from previously recorded data.

The *Lauloa* taros are planted almost exclusively under upland culture, most extensively in Kona, Hawaii, where they make excellent growth, and also in Puna and Kau. They are comparatively nonacidic and, probably for this reason, were used by the early Hawaiians for medicinal purposes, chiefly in pulmonary disorders. They are now popular principally as table taros although they are still used to a limited degree for poi.

The *Lauloa* group is somewhat unstable, the different forms producing occasional somatic mutations (4).

36. *Lauloa* Eleele-omao

(*Lauloa* Eleele, *Lauloa* Ha Eleele)

General characteristics: Tall, erect, stocky, maturing within 9 to 12 months, producing from 5 to 10 *oha*; recognized by purplish marginal veins on leaves and greenish edges of purplish-black petioles.

Petiole: 100 to 140 cm. long, purplish-black with fairly distinct light green edge, a dark red ring at base with light pink for 1 to 2 cm. above.

Leaf blade: 40 to 60 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, sagittate, slightly concave, dark green; margins with a few large undulations, the marginal veins purple; *piko* small, purplish; lobes obtuse with narrow sinus.

Corm: Flesh white, tinged with pink especially near the apex, with yellowish fibers; skin light to brilliant dark pink and occasionally purple along leaf-scar rings.

Inflorescence: Peduncle purplish-black; spathe 30 to 35 cm. long, usually curved and drooping, the lower tubular portion 5.5 to 6 cm. long, dark reddish-purple, the upper portion orange with reddish-purple margins, usually tightly rolled but sometimes slightly open near constriction.

Origin, and derivation of name: Native variety; the descriptive name *Eleele* refers to the purplish-black color of the petioles and the suffix *omao* to the light green edges.

Distribution: Planted fairly extensively in the uplands throughout the islands but especially so in Kona, Hawaii.

Use: Mainly as a table taro.

Remarks: This variety resembles *Lauloa Eleele-ula* so closely that at times it is practically impossible to distinguish the two. Although the outward appearance is almost identical, the quality of poi made from *Lauloa Eleele-ula* is far superior to that from this variety. The two varieties may be differentiated by the greenish edge and continuance of the petiole color into the leaf veins of *Lauloa Eleele-omao* in contrast to the more pinkish edge and the changing of the dark petiole color to a yellow green just below the apex of *Lauloa Eleele-ula*.

37. *Lauloa Eleele-ula*

(*Eleele Lauloa*)

General characteristics: Tall, erect, stocky, maturing within 9 to 12 months, producing from 2 to 5 *oha*; recognized by purplish-black petioles with pinkish edges.

Petiole: 100 to 140 cm. long, purplish-black with pinkish edge, light green at apex, a dark red ring at base with pink for 1 to 2 cm. above.

Leaf blade: 40 to 60 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, sagittate, slightly concave, dark green; margins with a few large undulations, the marginal veins purple; *piko* small, purplish; lobes obtuse with narrow sinus.

Corm: Flesh white tinged with pink, especially near the apex, with yellowish fibers; skin light to brilliant dark pink and occasionally purple along leaf-scar rings.

Origin, and derivation of name: Native variety; the suffix *ula* refers to the pinkish color of the edges.

Distribution: Planted somewhat extensively in the uplands throughout the islands, particularly in Kona.

Use: Grown mainly for home use as poi taro.

Remarks: Although in vegetative characters this variety is very similar to the other *Lauloa*, and it has occurred as a mutant form, in corm texture and quality of poi it is more closely related to the *Eleele* group.

38. *Lauloa Palakea-eleele*

(*Palakea, Lauloa Palakea*)

General characteristics: Tall, erect, stocky, maturing within 8 to 12 months, producing from 5 to 10 *oha*; the conspicuous black edge is a distinguishing feature.

Petiole: 100 to 140 cm. long, dark green heavily suffused with dark reddish-purple especially on upper half, dark purplish at apex, white at base, conspicuously blackish at edge.

Leaf blade: 45 to 65 cm. long, 30 to 40 cm. wide, 35 to 50 cm. from tip to base of sinus, sagittate, slightly concave, dark green; margins with a few large undulations; *piko* purplish; veins dark purplish on lower surface of lobes; lobes obtuse with narrow sinus.

Corm: Flesh chalky white with yellowish fibers; skin white or yellowish.

Inflorescence: Peduncle yellowish-green with faint brownish tinge, often reddish-purple at apex; spathe 32 to 37 cm. long, the lower tubular portion 5 to 6 cm. long, reddish-purple, the upper portion dark yellow with reddish-purple margins, bent and drooping, usually tightly folded but sometimes slightly open near constriction; spadix about 11 cm. long, the sterile appendage conspicuous, about 13 mm. long.

Origin, and derivation of name: Native variety; four members of the *Lauloa* group have the descriptive name *Palakea*, which refers to the soft, white consistency of the cooked corm. The distinguishing suffix, *elcele*, indicates the black edge of this form of *Lauloa Palakea*.

Distribution: Grown quite extensively in Kona, Hawaii, almost exclusively as upland taro.

Use: Used primarily as a table taro, being considered superior to both *Lauloa Palakea-keokeo* and *Lauloa Palakea-ula* although the poi is considered inferior to that of any of the standard poi taros; highly favored as a medicinal taro by the early Hawaiians.

Remarks: This variety is one of the hardiest of the taros, withstanding adverse weather conditions under which other varieties will not survive. Under favorable conditions it yields well and is comparatively early maturing. It is less acrid than most taros; hence its popularity for medicinal purposes.

39. *Lauloa Palakea-ula*

General characteristics: Tall, erect, maturing within 9 to 12 months, producing from 5 to 10 *oha*; characterized by pinkish edge and white base of petiole.

Petiole: 100 to 140 cm. long, dark green heavily suffused with dark reddish-purple especially on upper half, purplish at apex, white at base, with distinct reddish-pink to almost whitish edge.

Leaf blade: 45 to 65 cm. long, 30 to 40 cm. wide, 35 to 50 cm. from tip to base of sinus, sagittate, slightly concave, dark green; margins with a few large undulations; *piko* purplish; veins dark purplish on lower surface of lobes; lobes obtuse with narrow sinus.

Corm: Flesh chalky white with light yellowish fibers; skin yellowish.

Origin, and derivation of name: Native variety of comparatively recent origin, probably arising through somatic mutation from *Lauloa Palakea-elele*; given the suffix *ula* because of the distinguishing pink edge.

Distribution: Found occasionally among plantings of *Lauloa Palakea-elele*.

It is considered inferior in quality and is usually rogued out.

Use: Primarily as a table taro.

40. Lau loa Palakea-papamu*(Papamu, Lau loa Papamu)*

General characteristics: Tall, erect, maturing within 9 to 12 months, producing from 5 to 10 *oha*; closely resembles *Lau loa Palakea-cleele* and *Lau loa Palakea-ula* but differentiated by the pink petiole base.

Petiole: 100 to 140 cm. long, dark green heavily suffused with dark reddish-purple to blackish, especially on upper portion, purplish at apex, a brilliant pink ring at base, distinctly reddish-pink to almost whitish at edge.

Leaf blade: 45 to 65 cm. long, 30 to 40 cm. wide, 35 to 50 cm. from tip to base of sinus, sagittate, slightly concave, dark green; margins with a few large undulations; *piko* purplish; veins purplish on lower surface of lobes; lobes obtuse with narrow sinus.

Corm: Flesh white except for light pinkish tinge, especially near apex, the fibers yellowish; skin pink.

Inflorescence: Peduncle yellowish, flecked with green and purple; spathe 20 to 24 cm. long, the lower tubular portion about 4 cm. long, light purplish, the upper portion medium yellow with reddish edge; spadix 8 to 10 cm. long, the sterile appendage 11 mm. long.

Origin, and derivation of name: Native variety of comparatively recent origin, probably originating through somatic mutation; the derivation of the descriptive suffix is unknown.

Distribution: Found only occasionally among the other forms of *Lau loa Palakea*.

Use: Chiefly as table taro.

41. Lau loa Palakea-keokeo*(Lau loa Onionio)*

General characteristics: Tall, erect, stocky, maturing within 9 to 12 months, producing from 5 to 10 *oha*; identified by needle-like black streaks on dark green petioles.

Petiole: 100 to 140 cm. long, dark green with a few short blackish streaks, tinged with reddish-purple at apex and often near edge, indistinctly reddish at edge, a brilliant pink ring at base with light pink for 2 to 3 cm. above.

Leaf blade: 45 to 65 cm. long, 30 to 40 cm. wide, 35 to 50 cm. from tip to base of sinus, narrowly sagittate, slightly concave, dark green with bluish cast; margins with a few large undulations; *piko* purplish; lobes acute with narrow sinus.

Corm: Flesh white with pinkish tinge, especially near apex, and yellowish fibers; skin brilliant pink.

Inflorescence: Peduncle green with black streaks, reddish-purple at apex; spathe 30 to 35 cm. long, the lower tubular portion 5.5 to 6 cm. long, yellowish-green with reddish-purple at constriction, the upper portion yellow, curved and drooping, usually tightly rolled but sometimes open near constriction; spadix 12 cm. long, the sterile appendage 12 to 17 mm. long.

Origin, and derivation of name: Native variety of probably rather recent origin produced through somatic mutation; this variety has much lighter petioles than the other *Lauloa Palakea*—hence the suffix *keokeo*.

Distribution: Found exclusively under upland culture, occasionally as a mutation from *Lauloa Palakea-eleele*; it is usually rogued out as it is considered inferior.

Use: Sparingly as a table taro.

Remarks: Four forms of *Lauloa Palakea* are commonly known, all characterized by soft, white corms, and distinguished from each other by some coloring on the petioles. *Lauloa Palakea-keokeo* is the most easily distinguished, as the other three varieties are dark green heavily suffused with reddish-purple. The black streaking on the petiole of this variety is extremely narrow, most of the streaks being scarcely wider than the thickness of a needle and of uniform thickness for their entire length.

42. *Lauloa Keokeo*

(*Lauloa Ha Keokeo*)

General characteristics: Tall, erect, stocky, maturing within 9 to 12 months, producing from 3 to 10 *oha*; distinguished by practically self-green petioles.

Petiole: 100 to 140 cm. long, medium green slightly tinged with reddish-purple at apex, pinkish-red at edge, a red ring at base with light pink for 3 to 4 cm. above.

Leaf blade: 45 to 60 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, narrowly sagittate, slightly concave, medium green; margins with a few large undulations; *piko* small, light purplish; lobes obtuse with medium-cut to fairly deep sinus.

Corm: Flesh white with pinkish tinge, especially near apex, and yellowish fibers; skin light to dark pink.

Inflorescence: Peduncle light green; spathe green on lower tubular portion with faint purple areas at base and at constriction, the upper portion yellow.

Origin, and derivation of name: Native variety; this is the lightest colored of the *Lauloa*; hence the name *Keokeo*.

Distribution: Widely distributed throughout the islands, almost exclusively in the uplands, but especially common in Kona, Puna, and Kau, Hawaii. This variety is probably the most important of the *Lauloa*.

Use: Used primarily as a table taro.

GROUP ELEELE

This group, comprising two varieties, is characterized by a blackish or reddish-brown petiole with a dark reddish-purple ring at the base, a dark lilac-purple area for 3 to 4 cm. above the ring, and by the light lilac-purple corm flesh. The varieties in this group constituted the so-called "royal black taros" of the early Hawaiians. They

mature usually within 8 months and are fairly high producers. The corms must be harvested soon after maturity as they begin to rot very quickly. Even the *huli* deteriorate if held over for any length of time after harvesting. They are grown primarily under upland culture and are especially popular in Kona where they are made into red poi of excellent quality.

43. Eleele Makoko

(*Nohu, Makoko*)

General characteristics: Medium in height, well spreading, maturing within 8 to 12 months, producing from 5 to 10 *oha*; characterized by light purplish-black petioles shading into yellowish-green at apex and light lilac-purple corm flesh.

Petiole: 60 to 85 cm. long, drooping, light purplish-black on lower part shading into yellowish-green at apex, with an inconspicuous, narrow reddish edge, a dark reddish-purple ring at base with dark lilac-purple for 3 to 4 cm. above.

Leaf blade: 35 to 45 cm. long, 25 to 35 cm. wide, 25 to 35 cm. from tip to base of sinus, sagittate, medium green; margins undulate; *piko* light brownish; lobes acute with medium-cut sinus.

Corm: Flesh light lilac-purple; skin light reddish-purple.

Inflorescence: Peduncle blackish; spathe 22 to 25 cm. long, the lower tubular portion 3.5 to 4.5 cm. long, yellowish-green tinged with brown, with purplish areas at base and at constriction, the upper portion yellowish, slightly open at maturity; spadix 7 to 9 cm. long, the sterile appendage 6 to 7 mm. long.

Origin, and derivation of name: Native variety; *makoko* is a reddish fish.

Distribution: Not planted as widely as *Eleele Naioea* but its distribution is quite general; chiefly under upland culture.

Use: Makes light red poi of good quality; although not important commercially, it is grown fairly extensively for home use.

44. Eleele Naioea

(*Naioea, Eleele*)

General characteristics: Medium in height, well spreading, maturing within 8 to 12 months, producing from 5 to 10 *oha*; characterized by blackish petioles, similar to those of *Kumu-eleele*, *Lauloa Eleele-omao*, and *Lauloa Eleele-ula*, and by dark purplish-lilac corm flesh.

Petiole: 65 to 90 cm. long, blackish with inconspicuous narrow brownish to greenish edge, yellowish-green at apex, a dark reddish-purple ring at base with dark lilac-purple for 3 to 4 cm. above.

Leaf blade: 40 to 50 cm. long, 25 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, sagittate, drooping, slightly undulate, dark green, often with pinkish cast when young; *piko* inconspicuous, light reddish-brown; lobes acute with wide sinus.

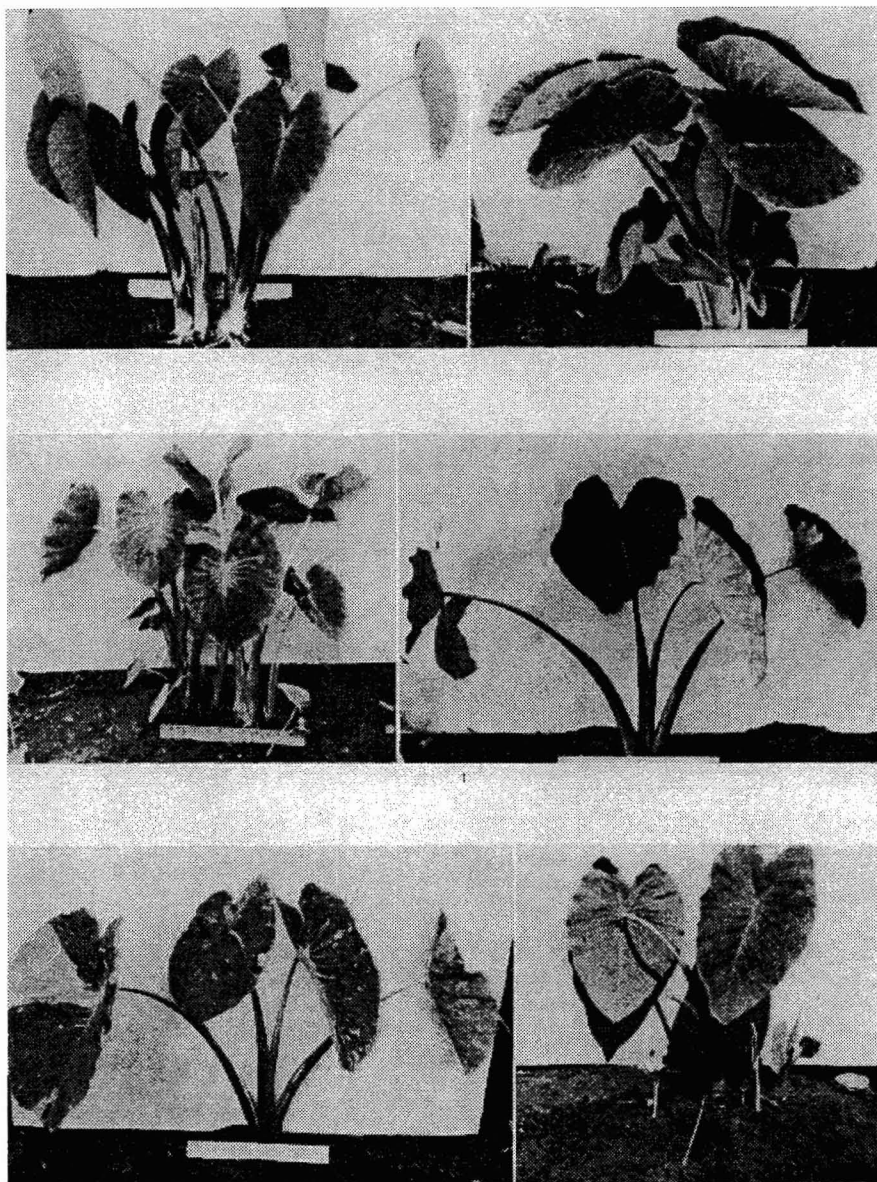


Fig. 5.—Upper right: *Mana Uliuli*, characterized by branching parent corm and pendant leaf blades; upper left: *Moana*, with short, stocky growth and slightly crinkled, horizontal leaf blades; middle left: *Piko Uliuli*, one of the leading wetland varieties, with sinus cut to point of attachment with the petiole; middle right: *Manini Torotoro*, with striped petioles; lower left: *Elepaio*, a picturesque variety with mottled green and white leaf blades; lower right: *Aveu*, one of the few varieties of taro producing rhizomes. Note the slender rhizomes on the foreground.

Corm: Flesh lilac-purple with conspicuous darker purple fibers; skin dark reddish-purple.

Inflorescence: Peduncle black; spathe 24 to 26 cm. long, the lower tubular portion 3.5 to 4.5 cm. long, yellowish-green tinged with brown, with purplish areas at base and constriction, the upper portion yellow, slightly open at maturity; spadix 8 to 9 cm. long, the sterile appendage 6 to 7 mm. long.

Origin, and derivation of name: Native variety; the derivation of the descriptive name is unknown.

Distribution: Very popular upland taro cultivated extensively in Kona, Kau, and Puna, Hawaii.

Use: The lilac-purple corms produce red poi that is highly prized.

45. Manini-owali

General characteristics: Medium in height to tall, moderately spreading, maturing within 9 to 12 months, producing from 2 to 5 *oha*; identified by yellowish-green to light red stripes on dark purplish background.

Petiole: 80 to 100 cm. long, broad at base tapering to a narrow, often curved apex, dark purple with yellowish green, light red, or sometimes quite indistinct stripes, pink to whitish at edge, a brilliant reddish-purple ring at base with lilac-pink for 1 to 2 cm. above.

Leaf blade: 50 to 60 cm. long, 35 to 40 cm. wide, 40 to 45 cm. from tip to base of sinus, sagittate, firm-chartaceous, dark green with bluish cast; margins undulate; *piko* purple; veins purple on lower surface; lobes acute with deep, narrow sinus.

Corm: Flesh white with pinkish tinge especially near apex, the fibers yellowish; skin lilac-pink with purple along leaf scars.

Inflorescence: Peduncle purplish-black or striped with purplish-black and yellowish-green or light red; spathe 26 to 30 cm. long, the lower tubular portion 4.5 to 5.5 cm. long, striped light green and purple with reddish-purple at base and constriction, the upper portion deep yellow or orange, sometimes with purplish margins, tightly rolled, open near constriction at maturity; spadix 10 to 11 cm. long, the sterile appendage 11 to 12 mm. long.

Origin, and derivation of name: Native variety; *manini* is a small striped Hawaiian fish, while *owali* means weakness.

Distribution: Comparatively rare; grown under upland or wetland culture.

Use: Primarily as a table taro.

46. Kumu-eleele

General characteristics: Medium in height, slender, erect, maturing within 9 to 12 months, producing from 2 to 5 *oha*; recognized by its blackish petioles with inconspicuous narrow reddish edges.

Petiole: 70 to 90 cm. long, blackish, with inconspicuous narrow reddish edges, greenish at apex, a dark pink ring at base with light pink for 2 to 3 cm. above.

Leaf blade: 45 to 60 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, sagittate, drooping, thin in texture, dark green with bluish cast; margins slightly undulate; *piko* small, purple; lobes obtuse to slightly acute with medium-cut to deep, narrow sinus.

Corm: Flesh white with lilac at apex, the fibers yellowish; skin lilac-pink, often dark purple along leaf-scar rings.

Origin, and derivation of name: Native variety; *Kumu* refers to dark pinkish tinge of corm, similar to color of the Hawaiian fish, and *elecle* refers to blackish color of the petioles.

Distribution: Rare; collected by Dr. E. S. C. Handy from Olowalu, Maui.

Use: Chiefly as table taro.

47. Nawao

General characteristics: Short to medium in height, moderately spreading, maturing within 9 to 12 months, producing from 5 to 10 *oha*; characterized by whitish corm flesh and purplish-black petioles shading into yellowish-green at apex, with red edges.

Petiole: 55 to 75 cm. long, purplish-black shading into yellowish-green at apex, red at edge, a dark pink ring at base with light pink for 3 to 4 cm. above.

Leaf blade: 35 to 45 cm. long, 30 to 35 cm. wide, 30 to 35 cm. from tip to base of sinus, subovate, fairly firm in texture, dark green; *piko* light yellowish to light brownish; lobes acute with deep, wide sinus.

Corm: Flesh white with light pinkish tinge, especially near apex, and yellowish fibers; skin pink.

Inflorescence: Peduncle light yellowish-green with brownish flecking at base; spathe 18 to 23 cm. long, the lower tubular portion 3 to 4 cm. long, light green tinged with purple at base, loosely rolled and sometimes slightly open, the upper portion clear deep yellow, open near constriction.

Origin, and derivation of name: Native variety; *nawao* means "that which is bad" and may indicate that this variety had a poor reputation as a poi taro among the Hawaiians.

Distribution: Found occasionally under upland culture in Puna, Hawaii.

Use: A fair table taro.

GROUP ULAULA

This group, comprised of three varieties, is characterized by conspicuously red or purplish petioles, comparatively small, ovate blades, and reddish-tinged flowers. These taros produce *oha* rather freely. They are grown under either upland or wetland culture and are used both for poi and as table taro. Although found in many localities, the varieties are grown in small patches, chiefly for home consumption, and the group is of very little commercial importance.

48. *Ulaula Kumu**(Kumu)*

General characteristics: Medium in height to tall, moderately spreading, maturing within 8 to 12 months, producing from 5 to 10 *oha*; identified by the brilliant light red petioles.

Petiole: 75 to 100 cm. long, brilliant light red occasionally faintly diffused with yellowish-green, indistinctly dark reddish at edge, a dark red ring at base with dark pink for 3 to 5 cm. above.

Leaf blade: 35 to 45 cm. long, 25 to 35 cm. wide, 25 to 35 cm. from tip to base of sinus, ovate, dark glossy green with bluish cast; *piko* conspicuous, purple; veins reddish on lower surface; lobes obtuse, undulate on margins, with narrow sinus.

Corm: Flesh white with pinkish tinge, especially near apex, the fibers yellowish; skin pinkish-lilac.

Inflorescence: Peduncle light red; spathe 21 to 23 cm. long, the lower tubular portion 3 to 4 cm. long, dark reddish-purple, tightly rolled, the upper portion dark yellow with tinge of red throughout, dark red with dark red streaks at margins, light red inside, partially open near constriction at maturity; spadix about 7 cm. long, the sterile appendage 4 to 5 mm. long, not clearly differentiated from staminate portion.

Origin, and derivation of name: Native variety; named after the brilliant red Hawaiian fish, *kumu*, because of the brilliant reddish color of the petioles.

Distribution: Found scattered throughout the islands in small patches under both wetland and upland cultures.

Use: Both as poi and as table taro, principally for home consumption; formerly this variety was used as an offering to the gods.

Remarks: This is one of the most brilliantly colored of the taros.

49. *Ulaula Poni**(Poni Ulaula)*

General characteristics: Medium in height to tall, moderately spreading, maturing within 8 to 10 months, producing from 5 to 10 *oha*; recognized by the dark reddish-purple petioles, inconspicuously striped with lighter color, with bright reddish edges.

Petiole: 75 to 100 cm. long, dark reddish-purple shading to purplish-lilac on upper third, inconspicuously striped with lighter color, distinctly bright reddish at edge, a purple ring at base with narrow, bright red area for 2 to 4 cm. above.

Leaf blade: 35 to 45 cm. long, 25 to 35 cm. wide, 25 to 35 cm. from tip to base of sinus, ovate, dark glossy green with bluish cast; *piko* conspicuous, purple; veins bright reddish on lower surface; lobes obtuse, undulate on margins, with narrow sinus.

Corm: Flesh white with pinkish apex, the fibers yellowish; skin brilliant lilac-pink, often dark purple along leaf-scar rings.

Origin, and derivation of name: Native variety; *poni*, meaning "purple," refers to the petiole coloring.

Distribution: Often found associated with the other *Ulaula*, usually in the uplands.

Use: Occasionally as a table taro; in early times a purple pigment was extracted from the petioles and used by the natives for dyeing tapa, straw hats, etc.

50. *Ulaula Moano*

(*Ieie, Iaia*)

General characteristics: Medium in height, moderately spreading, maturing within 8 to 10 months, producing from 5 to 10 *oha*; characterized by reddish-purple petioles with inconspicuous yellowish-green stripes.

Petiole: 70 to 95 cm. long, red near base shading to reddish-purple above, with inconspicuous yellowish-green stripes especially on midsection, indistinctly dark reddish at edge, a dark red ring at base with dark pink for 3 to 5 cm. above.

Leaf blade: 35 to 45 cm. long, 25 to 35 cm. wide, 25 to 35 cm. from tip to base of sinus, ovate, dark glossy green with bluish cast; *piko* large, distinct, purple; primary and marginal veins reddish on lower surface; lobes obtuse with narrow sinus.

Corm: Flesh white with pinkish tinge, especially near apex, the fibers yellowish; skin pinkish-lilac.

Origin, and derivation of name: Native variety; named after the Hawaiian fish, *moano*, which is reddish to reddish-purple with brownish markings.

Distribution: Planted in a few scattered localities throughout the islands, usually under upland culture.

Use: Both for poi and as table taro, principally for home consumption.

51. *Niue-ulaula*

(*Niue*)

General characteristics: Medium in height, well spreading, stocky, maturing within 9 to 12 months, producing from 5 to 10 *oha*; distinguished by its deep reddish-brown petioles and white base.

Petiole: 65 to 80 cm. long, deep reddish-brown slightly diffused with green, purplish-red at apex, white at base, with a narrow, dark pinkish edge.

Leaf blade: 40 to 55 cm. long, 25 to 35 cm. wide, 30 to 45 cm. from tip to base of sinus, sagittate, dark green with bluish cast; *piko* large, conspicuous, purple; veins distinctly purplish-red on lower surface, usually purplish on upper; lobes acute with narrow sinus.

Corm: Flesh chalky white with yellow fibers; skin white to cream-colored.

Origin, and derivation of name: Introduced from South Seas by Wilder as one of two distinct forms named *Niue*; the suffix *ulaula* has been added to designate the reddish hue of the petioles.

Distribution: Limited; grown primarily under upland culture.

Use: Principally as a table taro.

Remarks: According to Christophersen (2), *Niue* is apparently the name for a group comprising at least three varieties; the writers have not, how-

ever, been able to ascertain any characters by which the members of the group are linked.

52. Oopukai

(*Kaimoi*)

General characteristics: Medium in height, well spreading, maturing within 9 to 12 months, producing from 2 to 5 *oha*; distinguished by lilac-purple corm flesh and reddish-purple flecked stripes.

Petiole: 65 to 90 cm. long, light yellowish-green with dark purple or reddish-purple flecked stripes and blotches, dark red at edge, reddish-purple at apex, a dark reddish-purple ring at base with purplish-pink for 3 to 4 cm. above.

Leaf blade: 50 to 65 cm. long, 35 to 45 cm. wide, 40 to 50 cm. from tip to base of sinus, ovate, dark green with bluish cast; margins undulate; *piko* purple; veins conspicuously reddish-purple over entire lower surface; lobes acute with wide sinus.

Corm: Flesh light lilac-purple with darker purplish fibers; skin dark pinkish-lilac.

Origin, and derivation of name: Native variety; *Oopukai* means "sea guppy," a fish similar in coloring to the petiole of this taro.

Distribution: Planted fairly extensively in Kona, Hawaii, primarily under upland culture, but found only occasionally on the other islands.

Use: Mainly as table taro; the leaves are often used for *luau*.

Remarks: Although good poi can be made from this variety, it cannot be stored as long as poi from other taros due to over-rapid fermentation.

GROUP MANINI

This group, named after the common striped fish *manini*, is distinguished by green and reddish-purple or purplish-black striped petioles, white corm flesh, and quite narrow, sagittate leaf blades. Formerly it was grown quite extensively under wetland culture, particularly in Wahiawa, Kauai, which was noted for its *Manini* taros. At present the varieties are grown under upland culture in a few scattered localities for home consumption as table taro. Their popularity has declined somewhat, possibly due to susceptibility to disease or to higher yields of other varieties.

53. Manini Uliuli

General characteristics: Medium in height to tall, slender, erect, maturing in about 12 months, producing from 2 to 5 *oha*; characterized by broad purplish-black stripes on dark green petioles.

Petiole: 75 to 90 cm. long, dark green with broad purplish-black stripes especially near base, with light pink to whitish edge, purplish-red at apex, white at base with livid brown for 3 to 4 cm. above.

Leaf blade: 35 to 50 cm. long, 25 to 35 cm. wide, 25 to 35 cm. from tip to base of sinus, sagittate, thin in texture, dark green; margins slightly undulate; *piko* purple; veins reddish on lower surface of lobes; lobes acute with narrow sinus.

Corm: Flesh white with yellowish fibers; skin yellowish with purple leaf scars.

Origin, and derivation of name: Native variety; derives name from dark striping of petioles.

Distribution: Limited; grown equally well under upland or wetland culture.

Use: Chiefly as table taro; makes poi of fair quality.

Remarks: The petiole stripes are less interrupted than in other striped varieties and very broad, especially at base, often coalescing to form purplish-black blotches.

54. Manini Kea

General characteristics: Medium in height to tall, well spreading, maturing in about 12 months, producing from 5 to 10 *oha*; distinguished by very light-colored petioles with indistinct reddish-purple stripes.

Petiole: 65 to 90 cm. long, shading from light green to yellowish-green toward apex with a few indistinct, more or less interrupted reddish-purple stripes more prominent toward base, conspicuously reddish-purple at apex, an area of white for 3 to 5 cm. above base, with inconspicuous faint pink to whitish edge.

Leaf blade: 40 to 50 cm. long, 30 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, sagittate, thin in texture, drooping, dark green with bluish cast; *piko* purple; veins purple on lower surface of lobes; lobes acute with narrow sinus.

Corm: Flesh white with yellowish fibers; skin white to cream-colored.

Origin, and derivation of name: Native variety; probably called *Kea* because of very light petioles.

Distribution: Planted in a few scattered localities, under upland or wetland culture.

Use: Makes poi of good quality.

Remarks: This variety seems to be fairly resistant to soft rot. It is the lightest in color of the striped taros, both basically and as to stripes, which are, strictly speaking, minute fleckings arranged in definite, narrow lines.

55. Manini Toretore

(*Toretore, Forefore*)

General characteristics: Medium in height to tall, slender, erect, maturing within 9 to 12 months, producing from 2 to 5 *oha*; differentiated by profuse purplish-black stripes on light green background.

Petiole: 75 to 100 cm. long, light green prominently striped with purplish-black nearly throughout, the upper section suffused with reddish-purple which runs into primary veins of basal lobes, reddish-purple at apex, whitish at base, with indistinct whitish edge.

Leaf blade: 40 to 55 cm. long, 35 to 45 cm. wide, 30 to 40 cm. from tip to base of sinus, ovate, inconspicuously mottled dark and light green with bluish cast; *piko* large, prominent, purple; veins reddish-purple at margins and on lower surfaces of lobes; lobes acute with deep, narrow sinus.

Corm: Flesh chalky white with conspicuous yellow fibers; skin cream-colored.

Inflorescence: Peduncle striped dark purple and light green; spathe about 28 cm. long, the lower tubular portion striped like peduncle with deep purple at constriction, the upper portion yellow; spadix about 9 cm. long, the staminate portion yellow, the sterile appendage orange, about 8 mm. long.

Origin, and derivation of name: Introduced from South Seas; *Toretore* is the name under which it was introduced but it has been classified under the *Manini* group.

Distribution: Little-known variety of limited distribution.

Use: A fair table taro.

56. Papakolea-koae

(*Papakolea*)

General characteristics: Short to medium in height, moderately spreading, stocky, maturing within 9 to 12 months, producing from 5 to 10 *oha*; the brilliantly red-streaked apex of the petiole is distinctive.

Petiole: 60 to 80 cm. long, dark green brilliantly streaked with red at apex, especially when young, a brilliant deep pink ring at base, the area above red with a few broad green stripes, indistinctly pinkish at edge.

Leaf blade: 40 to 55 cm. long, 30 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, slightly concave, thin in texture, medium green; margins slightly undulate; *piko* light green or tinged with red; veins brilliantly reddish on lower surfaces of lobes; lobes acute with wide sinus.

Corm: Flesh white with pinkish tinge, especially near apex, and yellowish fibers; skin a brilliant pink, purple at leaf-scar rings.

Origin, and derivation of name: Native variety; *Papakolea*, being the name of a land district, and *koae*, meaning "the food of," probably indicates that this variety was the common food of the district.

Distribution: Planted exclusively under upland culture in a few scattered localities, chiefly in Kona and Puna, Hawaii.

Use: Primarily as a table taro.

Remarks: The red coloration near the base of the petioles is often so narrow that it may not be noticed.

57. Ula

General characteristics: Short to medium in height, moderately spreading, stocky, maturing within 9 to 12 months, producing from 2 to 5 *oha*; distinguished by a few narrow green stripes on the brilliant pink basal portion of the petioles.

Petiole: 60 to 80 cm. long, rather rigid, nearly solid pink at base with narrow green stripes, the upper half green, distinctly reddish-pink at edge, a white ring at base.

Leaf blade: 40 to 55 cm. long, 30 to 40 cm. wide, 30 to 40 cm. from tip to base of sinus, ovate, thin in texture, medium green; margins slightly undulate; *piko* yellowish-green to light green; lobes acute with narrow sinus.

Corm: Flesh chalky white with large, conspicuous, yellow fibers; skin white to cream-colored.

Origin and derivation of name: Introduced from Samoa by Wilder, *ula* means "red" in Samoan and probably refers to the brilliant pinkish-red coloration of the petiole bases.

Distribution: Upland taro of limited distribution.

Use: A good table taro.

Remarks: The similarity between this variety and *Papakolea-koae* is rather striking, further indicating the close relationship between certain Hawaiian and South Sea forms.

58. Nihopuu

General characteristics: Medium in height to tall, moderately spreading, maturing within 12 months, producing from 5 to 10 *oha*; identified by light and dark green-striped petioles and distinct purplish-black edges.

Petiole: 75 to 90 cm. long, light and dark green-striped, the light green predominating, conspicuously purplish-black at edge, white to greenish-white at base.

Leaf blade: 45 to 50 cm. long, 30 to 35 cm. wide, 35 to 40 cm. from tip to base of sinus, sagittate, indistinctly light and dark green-mottled; *piko* purple; lobes acute with deep, narrow sinus.

Corm: Flesh white with yellowish fibers; skin white.

Origin, and derivation of name: Native variety, collected at Ewa, Oahu; the derivation of the name is unknown.

Distribution: Rare; formerly grown to considerable extent in valleys near Schofield Barracks.

Use: Makes a light-colored poi of good quality.

Remarks: This variety is said to be susceptible to soft rot soon after maturity, necessitating early harvesting.

59. Manini-opelu

General characteristics: Medium in height, well spreading, maturing within 9 to 12 months, producing from 5 to 10 *oha*; distinguished by profuse light and dark green striping of the petiole, with reddish tinge on upper third.

Petiole: 65 to 90 cm. long, distinctly and profusely dark and light green-striped, strongly tinged with reddish-purple on upper third, white at base, light pinkish at edge, curved slightly at apex.

Leaf blade: 45 to 55 cm. long, 30 to 40 cm. wide, 40 to 45 cm. from tip to base of sinus, sagittate, thin in texture, drooping, inconspicuously light and dark green-mottled; margins undulate; *piko* purple; veins reddish-purple on lower surface; lobes acute with narrow sinus.

Corm: Flesh white with yellow fibers; skin white to cream-colored.

Inflorescence: Peduncle green- and white-striped with diffusion of reddish-purple; spathe 28 to 32 cm. long, the lower tubular portion 4 to 5 cm.

long, tightly convolute, green- and white-striped with conspicuous diffusion of reddish-purple often nearly obscuring the striping, the upper portion tightly rolled, slightly open near constriction upon maturity, yellow, often drooping.

Origin, and derivation of name: Native variety, the first part of the name is derived from the striping, and the second may be due to the coloring of the petiole or to the use of the corm as fish bait.

Distribution: Planted in a few scattered localities, nearly always under upland culture.

Use: Primarily as a table taro.

60. Hinupuaa

(*Manini*)

General characteristics: Medium in height to tall, slender, moderately spreading, maturing within 15 to 18 months, producing from 2 to 5 *oha*; readily identified by profuse light and dark green petiole stripes and light pinkish edge.

Petiole: 70 to 100 cm. long, light and dark green-striped throughout length of petiole, the dark stripes predominating, slightly tinged with purple on upper half, purplish at apex, white to greenish-white at base, light pinkish at edge.

Leaf blade: 35 to 60 cm. long, 30 to 40 cm. wide, 30 to 45 cm. from tip to base of sinus, sagittate, thin in texture, slightly mottled dark and light green with bluish cast; margins slightly undulate; *piko* purple; lobes acute with narrow sinus.

Corm: Flesh white with yellowish fibers; skin white to cream-colored.

Inflorescence: Peduncle green- and white-striped; spathe about 24 cm. long, the lower tubular portion 4 to 5 cm. long, green- and white-striped, the upper yellow, tightly rolled or sometimes open near constriction; spadix 8 cm. long, the sterile appendage 7 mm. long.

Origin, and derivation of name: Native variety; the name *Hinupuaa* is literally translated "pig grease," and may have referred to the glossy appearance of the petiole or the slippery texture of the cooked corm.

Distribution: Limited; usually grown under upland culture.

Use: Mainly as a table taro.

61. Niue-uliuli

(*Niue*)

General characteristics: Medium in height to tall, moderately spreading, maturing within 9 to 12 months, producing from 2 to 5 *oha*; quite similar in coloring to *Kai Uliuli* except at the edge, which is narrow and reddish instead of broad and whitish or yellowish.

Petiole: 75 to 105 cm. long, dark green slightly shaded with reddish-brown, purplish at apex, reddish at edge, a brilliant dark pink ring at base with light pink for 3 to 4 cm. above.

Leaf blade: 45 to 55 cm. long, 30 to 40 cm. wide, 40 to 45 cm. from tip to base of sinus, ovate, slightly concave, dark green with bluish cast; margins with numerous fine undulations; *piko* and marginal veins reddish-purple; lobes obtuse with wide sinus.

Corm: Flesh white tinged with pink, especially near apex, with yellowish fibers; skin light pink.

Origin, and derivation of name: Introduced from Samoa by Wilder under the name *Niue* (see also *Niue-ulaula*, No. 51); the suffix *uliuli* given to this variety refers to the dark green petioles which are slightly shaded with reddish-brown.

Distribution: Little-known variety of limited distribution.

Use: Primarily as a table taro.

62. Ohe

General characteristics: Medium in height, well spreading, stocky, maturing within 12 to 16 months, producing from 5 to 10 *oha*; characterized by light green petioles with light reddish-brown tinge on lower half.

Petiole: 60 to 80 cm. long, light green tinged with light reddish-brown on lower half, with inconspicuous, narrow, reddish-brown edge, an orange-red or dark pink ring at base with light greenish or pinkish area for 3 to 5 cm. above.

Leaf blade: 35 to 45 cm. long, 20 to 30 cm. wide, 30 to 35 cm. from tip to base of sinus, sagittate, thin in texture, medium green; margins slightly undulate; *piko* whitish to light brownish; lobes acute with wide sinus.

Corm: Flesh white with light pinkish tinge, especially near apex, and yellowish fibers; skin light pink.

Origin, and derivation of name: Native variety; *Ohe* is the Hawaiian name for bamboo and probably refers to the similarity of the petiole coloring to the stem coloring of a certain variety of Hawaiian bamboo.

Distribution: Very common in Kona, Puna, and Kau on Hawaii, primarily under upland culture.

Use: Makes poi of excellent quality.

Remarks: This variety is an important upland poi taro, especially well adapted to elevations above 1,500 feet.

GROUP LEHUA

This group is distinguished by light green, spreading petioles, very smooth, sagittate leaf blades, and lilac-purple corms. The name *Lehua* is derived from the flowers of the *lehua* tree, which are similar in coloring to the corm flesh. There are four varieties, all of which make red poi of excellent quality. All red pois are called "*Lehua* poi" for this reason. They mature early, usually in from 8 to 12 months, and are grown under both wetland and upland cultures. They are known as royal taros and were formerly grown for and eaten only by the chiefs.

63. *Lehua Maoli**(Lehua)*

General characteristics: Medium in height, well spreading, slender, maturing within 8 to 12 months, producing from 5 to 10 *oha*; identified by yellowish-green, widely spreading petioles and light purplish-lilac corm flesh.

Petiole: 65 to 80 cm. long, yellowish-green with pinkish cast, slightly tinged with brownish-purple at apex, pinkish-lilac at edge, a dark reddish-purple ring at base with light purplish-lilac for 3 to 5 cm. above.

Leaf blade: 40 to 55 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, sagittate, very smooth in outline, thin in texture, drooping, medium green, often with pinkish tinge when young; *piko* small, light pinkish; lobes acute with narrow sinus.

Corm: Flesh light purplish-lilac with darker purplish fibers; skin dark pinkish-lilac.

Inflorescence: Peduncle pale green with pinkish flush; spathe 14 to 20 cm. long, the lower tubular portion 2.5 to 3 cm. long, olive green with pinkish tinge, the upper portion deep yellow, open near constriction only upon maturity; spadix 6 to 7 cm. long, the sterile appendage 6 to 8 mm. long.

Origin, and derivation of name: Native variety; *maoli* means "the more common" or "ordinary." This variety is commonly known simply as "*Lehua*."

Distribution: A favorite variety of the Hawaiians, grown throughout the islands under both upland and wetland cultures. It is the most widely distributed of the upland poi taros and is planted extensively in Kona, Hawaii.

Use: The widely advertised "*Lehua* red poi," which often commands a premium in price, usually comes from this variety.

64. *Lehua Keokeo**(Waiakea)*

General characteristics: Medium in height, well spreading, maturing within 8 to 12 months, producing from 5 to 10 *oha*; identified by pale green petioles with broad, purplish-black edges.

Petiole: 70 to 90 cm. long, pale green often tinged with reddish-brown at apex, pinkish at base with a reddish-purple ring, the edge conspicuous, broad, purplish-black with adjacent dark green blotches.

Leaf blade: 40 to 55 cm. long, 35 to 45 cm. wide, 35 to 45 cm. from tip to base of sinus, broadly sagittate, drooping, medium green with pinkish cast when young; margins slightly undulate; *piko* pinkish; veins reddish on lower surface; lobes acute with medium-cut sinus.

Corm: Flesh pale pinkish with purplish fibers; skin dark pinkish.

Origin, and derivation of name: An old native variety; the descriptive name *Keokeo* is derived from the pale coloring of the petiole.

Distribution: Grown in a few scattered localities, primarily under upland culture.

Use: Makes red poi of good quality.

Remarks: This variety is reputed to make very luxuriant growth in certain sections, rivaling the *Lauloa* group.

65. *Lehua Eleele*

(*Wailana*)

General characteristics: Medium in height to tall, slender, erect, maturing within 8 to 12 months, producing from 2 to 5 *oha*; distinguished by the dark green petioles which are shaded with purple, especially near base and along margins.

Petiole: 75 to 100 cm. long, dark green with purplish shading especially near base and along margins, purple at apex, with a narrow dark reddish to purplish-black edge, a dark reddish-purple ring at base with lighter reddish-purple for 3 to 5 cm. above.

Leaf blade: 45 to 55 cm. long, 30 to 35 cm. wide, 35 to 45 cm. from tip to base of sinus, sagittate, drooping, dark green; *piko* small, dark purplish; lobes acute with deep, narrow sinus.

Corm: Flesh lilac-purple with darker reddish-purple fibers; skin brilliant reddish-purple; roots light reddish-purple.

Origin, and derivation of name: Native variety; the name *Eleele* is probably given to this variety because it has much darker colored petioles than other *Lehua* varieties, although the petioles are far from being blackish. This variety is known as *Wailana* in Kona, Hawaii.

Distribution: Planted quite extensively in Kona, Hawaii, usually under upland culture, but practically none is grown elsewhere.

Use: Makes a very good red poi.

Remarks: This is an early-maturing taro of high yielding capacity. It must be harvested as soon as it is mature as it rots readily if held in the field for any length of time.

66. *Lehua Palaii*

(*Palaii*)

General characteristics: Short to medium in height, stiffly erect, slender, maturing within 12 to 18 months, producing from 5 to 10 *oha*; distinguished by lilac-purple corm flesh and dark green petioles.

Petiole: 60 to 75 cm. long, dark green slightly tinged with reddish-brown at apex, a dark purple ring at base with light purplish-lilac for 3 to 4 cm. above, with a narrow, indistinct, reddish to whitish edge.

Leaf blade: 40 to 50 cm. long, 25 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, sagittate, drooping, dark green with faint pinkish cast; margins slightly undulate; *piko* light green to faint brownish; lobes acute with fairly deep, wide sinus.

Corm: Flesh lilac-purple with darker purplish fibers; skin light pink.

Inflorescence: Peduncle dark green; spathe 18 to 23 cm. long, the lower tubular portion 3 to 4 cm. long, dark green, the upper portion clear, deep yellow, open near constriction only upon maturity; spadix 7 to 8 cm. long, the sterile appendage 5 to 8 mm. long.

Origin, and derivation of name: Native variety; the derivation of the name is unknown.

Distribution: Planted extensively in Kona, Hawaii, where it probably covers a greater acreage than any other variety, principally under upland culture.

Use: An excellent upland poi taro.

Remarks: This variety is said to be quite hardy and a good yielder.

67. Apowale

General characteristics: Medium in height, stiffly erect, maturing within 9 to 12 months, producing from 2 to 5 *oha*; identified by dark green petioles flecked with reddish-brown near basal portion.

Petiole: 60 to 90 cm. long, dark green flecked with reddish-brown on lower portion, with an indistinct, narrow, reddish edge, pink at base.

Leaf blade: 40 to 65 cm. long, 30 to 50 cm. wide, 35 to 55 cm. from tip to base of sinus, sagittate, thin in texture, slightly crinkled, dark green; *piko* and midrib whitish to light brownish; lobes obtuse with shallow, wide sinus.

Corm: Flesh white with light pinkish tinge, especially near apex, and yellowish fibers; skin dark pink to purplish.

Origin, and derivation of name: Native variety; *apowale* means "to seize," and undoubtedly derives from the fact that the variety has a tough root system and must be grasped firmly when pulled.

Distribution: Grown to a limited extent on Oahu, principally at Waialua, usually under wetland culture.

Use: Chiefly as poi taro.

68. Wehiwa

(*Wehewa, Wewehiwa*)

General characteristics: Medium in height, moderately spreading, maturing within 8 to 12 months, producing from 5 to 10 *oha*; similar to *Apowale* except that the flecking and color of base are lighter and the petioles are reddish at point of juncture with the leaf blade.

Petiole: 70 to 90 cm. long, dark green with dark purplish tinge on lower portion, flecked near base, light reddish-brown at apex, reddish-brown at edge, a light pink ring at base.

Leaf blade: 45 to 55 cm. long, 30 to 40 cm. wide, 35 to 45 cm. from tip to base of sinus, sagittate, somewhat concave, dark green; margins slightly undulate; *piko* light reddish-purple; lobes acute with narrow sinus.

Corm: Flesh white with yellowish fibers; skin light to dark purple, the leaf scars dark purple.

Inflorescence: Peduncle dark green with brownish flecking on lower part; spathe 22 to 26 cm. long, the lower tubular portion 3 to 3.5 cm. long, dark green with purple at base, the upper portion yellow; spadix about 10 cm. long, the sterile appendage 8 to 9 mm. long.

Origin, and derivation of name: Native variety; the derivation of the name is unknown.

Distribution: Little-known variety, found only occasionally around Hilo and in Puna, Hawaii, under upland culture.

Use: Good for poi as well as for *luau*.

Remarks: Growers state that this variety can be held over in the fields for a considerable period after maturity without serious loss from soft rot.

69. Papapueo

General characteristics: Short to medium in height, moderately spreading, maturing within 9 to 12 months, producing from 2 to 5 *oha*; the dark green petiole with conspicuous, broad whitish edge is the chief distinguishing character.

Petiole: 50 to 70 cm. long, dark green with conspicuous, broad whitish edge, a brilliant dark pink ring at base with light pink for 3 to 5 cm. above.

Leaf blade: 35 to 50 cm. long, 25 to 40 cm. wide, 30 to 40 cm. from tip to base of sinus, ovate, drooping, dark green; margins slightly undulate; *piko* light green to light brownish; lobes acute with wide sinus.

Corm: Flesh white with inconspicuous yellowish fibers; skin pale pink.

Origin, and derivation of name: Native variety; the name *Papapueo* may indicate that this is an old variety in Hawaii, *papa* meaning "ancient" and *pueo*, "a land section."

Distribution: Grown to some extent on Maui, under wetland culture, but very little elsewhere.

Use: Fair poi taro.

70. Kuoho

General characteristics: Medium in height, moderately spreading, maturing within 9 to 12 months, producing from 5 to 10 *oha*; distinguished by very dark green petioles with indistinct, narrow pinkish edges.

Petiole: 65 to 80 cm. long, dark green with an indistinct, narrow pinkish edge, a dark pink ring at base with light pinkish area for 1 to 3 cm. above.

Leaf blade: 35 to 45 cm. long, 25 to 30 cm. wide, 25 to 35 cm. from tip to base of sinus, narrowly sagittate, dark green; margins slightly undulate; *piko* light yellowish; lobes acute with wide sinus.

Corm: Flesh white with light pinkish tinge, especially near apex, the fibers yellowish; skin light pink, purplish along leaf-scar rings.

Origin, and derivation of name: Native variety; *kuoho* means "fish hook," but the source of the name is unknown.

Distribution: A great favorite in Puna, Hawaii, but seldom seen elsewhere; grown mainly under upland culture.

Use: Makes smooth, light-colored poi of good quality.

71. Leo

General characteristics: Medium in height, moderately spreading, maturing within 9 to 12 months, producing from 2 to 5 *oha*; distinguished by somewhat crinkled leaf blades, whitish petiole bases, and yellowish-green blotches adjacent to narrow, reddish petiole edges.

Petiole: 65 to 80 cm. long, dark green with dark brown flecked shading on lower portion, yellowish at apex, white at base, a narrow reddish edge usually with adjacent yellowish-green blotches, especially near base.

Leaf blade: 40 to 50 cm. long, 35 to 40 cm. wide, 30 to 40 cm. from tip to base of sinus, ovate, slightly crinkled, dark green; *piko* light green to yellowish; veins conspicuous; lobes obtuse to slightly acute with wide sinus.

Corm: Flesh white with yellowish fibers; skin cream-colored.

Inflorescence: Peduncle green; spathe 15 to 17 cm. long, the lower tubular portion 2.5 to 3 cm. long, green, the upper portion yellow; spadix 6 to 7 cm. long, the sterile appendage 8 to 11 mm. long.

Origin, and derivation of name: Native variety; *leo*, meaning "influence arising from station, character, or reputation," indicates that this may have been an important variety in the old days.

Distribution: Little is grown except for some plantings in Puna, Hawaii, usually under upland culture.

Use: Primarily as a table taro.

72. Maea

General characteristics: Medium in height, well spreading, maturing within 9 to 12 months, producing from 5 to 10 *oha*; characterized by dark green petioles, whitish at base with reddish-brown flecks immediately above, and conspicuous broad whitish edges.

Petiole: 60 to 80 cm. long, drooping, dark green flecked with reddish-brown, the flecking most pronounced near base, with a conspicuous, broad whitish edge, often tinged with reddish-purple adjacent to the edge, white at base.

Leaf blade: 35 to 45 cm. long, 25 to 30 cm. wide, 30 to 40 cm. from tip to base of sinus, narrowly sagittate, dark green; *piko* yellowish; lobes acute with wide sinus.

Corm: Flesh white with yellowish fibers; skin cream-colored, usually with dark purple along leaf-scar rings.

Origin, and derivation of name: Native variety; *maea* means "strong smelling" or "pungent" in Hawaiian, and probably refers to the odor of the cooked corms.

Distribution: Little-known variety, found occasionally under upland culture in Puna, Hawaii.

Use: Mainly as a table taro.

73. Haokea

(*Haakea*, *Haawikea*, *Ahakea*)

General characteristics: Medium in height, erect, stocky, maturing within 9 to 12 months, producing from 10 to 15 *oha*; distinguished by the light self-green petioles and narrowly ovate leaf blades.

Petiole: 65 to 90 cm. long, light green with indistinct greenish edge, white at base.

Leaf blade: 45 to 60 cm. long, 35 to 50 cm. wide, 35 to 45 cm. from tip to base of sinus, narrowly ovate, medium green; *piko* light yellowish-green; veins rather conspicuous; lobes obtuse with wide sinus.

Corm: Flesh white with yellowish fibers; skin white; roots conspicuously white.

Inflorescence: Peduncle light green; spathe 26 to 37 cm. long, the lower tubular portion 4 to 5 cm. long, light green with faint tinge of purple at base, rather loosely rolled, the upper portion deep yellow, open near constriction and loosely rolled above; spadix 8 to 11 cm. long, the sterile appendage 9 to 14 mm. long, clearly constricted from staminate portion.

Origin, and derivation of name: Native variety; the name is probably derived from the firm white corm flesh.

Distribution: Quite common throughout the islands, under both wetland and upland cultures.

Use: A commercial poi taro in certain areas on Oahu, making a good quality poi of grayish color. The young leaves are comparatively nonacid and are used extensively for *luau*. Formerly, this taro was used as offerings to the gods, the *luau* being highly prized by the *kahuna*. It was also used quite widely for medicinal purposes.

74. Kalalau

General characteristics: Short to medium in height, well spreading, maturing within 9 to 12 months, producing from 5 to 10 *oha*; identified by the light self-green spreading petioles and sagittate leaf blades.

Petiole: 55 to 70 cm. tall, light green, inconspicuously greenish at edge, white at base.

Leaf blade: 35 to 50 cm. long, 25 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, sagittate, medium green; margins slightly undulate; *piko* yellowish; lobes acute with wide sinus.

Corm: Flesh chalky white with yellowish fibers; skin whitish.

Origin, and derivation of name: Native variety; possibly named after Kalalau, a tableland on Mt. Waialeale, Kauai.

Distribution: Planted quite extensively on Maui, Molokai, and Kauai.

Use: Not very important commercially as it is inclined to rot readily under slightly adverse conditions. The *luau* is relatively nonacid. Poi of good quality may be made from this variety.

DESCRIPTIONS OF UNCLASSIFIED
VARIETIES



DESCRIPTIONS OF UNCLASSIFIED VARIETIES

67

75. Hapuu

(Hapuu-puu)

General characteristics: Medium in height, erect, maturing within about 12 months, producing from 2 to 5 *oha*; identified by the dark reddish-brown to purplish-brown coloration on the lower half of the petioles with reddish-flecked area at base.

Petiole: 60 to 80 cm. long, dark reddish-brown or purplish-brown on lower half, sometimes lightly tinged with green, pinkish to whitish at edge, a reddish-purple ring at base with lighter reddish-purple, flecked area for 3 to 5 cm. above.

Leaf blade: 40 to 50 cm. long, 25 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, narrowly ovate; *piko* whitish to pinkish; lobes obtuse with shallow, wide sinus.

Corm: Flesh white with light pinkish tinge, especially near the apex, the fibers yellowish; skin reddish.

Origin, and derivation of name: Native variety; *hapuu* means "abounding" or "plenteous."

Distribution: Grown to a limited extent, under both upland and wetland cultures; this is an important poi taro in a few scattered localities, the vicinity near Hana, Maui having the most extensive plantings.

Use: Makes a light-colored poi of good quality; the leaves are considered very good for *luau*.

76. Laaloa

General characteristics: Medium in height, well spreading, maturing within 8 to 12 months, producing from 5 to 10 *oha*; characterized by white petiole bases and reddish-brown shading on the lower half of the petioles.

Petiole: 65 to 90 cm. long, reddish-brown shading to greenish on upper portion, indistinctly brownish at edge, white at base.

Leaf blade: 40 to 50 cm. long, 30 to 35 cm. wide, 30 to 40 cm. from tip to base of sinus, sagittate, medium green; *piko* light yellowish-green; lobes obtuse to slightly acute with wide sinus.

Corm: Flesh chalky white with yellowish fibers; skin whitish.

Origin, and derivation of name: Native variety; the derivation of the name is unknown.

Distribution: Most common on the island of Hawaii, chiefly under upland culture; it thrives best in wet upland forests.

Use: Mainly as table taro.

77. Lauhoa Uliuli

(Hinapu, Lauhoa Ha Uliuli)

General characteristics: Tall, erect, stocky, maturing within 9 to 12 months, producing from 5 to 10 *oha*; distinguished from other *Lauhoa* by dark green petioles with dark brown tinge on lower portion.

Petiole: 100 to 140 cm. long, dark green tinged with dark brown or reddish-brown on lower portion only, pink to whitish at edge, a dark red ring at base with light pink for 4 to 6 cm. above.

Leaf blade: 45 to 65 cm. long, 30 to 40 cm. wide, 35 to 50 cm. from tip to base of sinus, sagittate, slightly concave, dark green; margins with a few large undulations; *piko* small, light purplish; lobes obtuse with narrow sinus.

Corm: Flesh white with pinkish tinge, especially near apex, and yellowish fibers; skin light pink, occasionally purple along leaf-scar rings.

Origin, and derivation of name: Native variety; the descriptive name *Uliuli* refers to the dark green petioles with brownish tinge.

Distribution: Found occasionally among other *Lauloa*.

Use: Mainly as table taro.

78. Lihilihimolina

General characteristics: Short to medium in height, well spreading, producing a few *oha*; easily identified by the unusual coloring of the corm flesh—lilac-purple in the center, surrounded by white. This is the only taro having bicolored corm flesh.

Petiole: 55 to 70 cm. long, rather drooping, yellowish-green flecked with reddish-brown near base, a faint, pale pink ring at base with white for 3 to 5 cm. above.

Leaf blade: 35 to 45 cm. long, 25 to 35 cm. wide, 30 to 35 cm. from tip to base of sinus, sagittate, thin in texture, smooth and regular in outline; lobes acute with wide sinus.

Corm: Conspicuously lilac-purple at center and white outside; skin white with purple along leaf-scar rings.

Origin, and derivation of name: Native variety; the derivation of the name is unknown.

Distribution: Found only occasionally under upland culture on the island of Hawaii.

Use: Primarily as a table taro.

79. Mana Eleele

(*Poni Mana*)

General characteristics: Medium in height, erect, maturing within 9 to 12 months, producing two or three branches; readily distinguished from other *Mana* by blackish petioles.

Petiole: 55 to 85 cm. long, purplish-black, pink to whitish at edge, a dark reddish-purple ring at base with lilac pink for 3 to 4 cm. above.

Leaf blade: 35 to 50 cm. long, 25 to 40 cm. wide, 30 to 40 cm. from tip to base of sinus, ovate, dark green; veins purplish on lower surface; lobes acute with shallow sinus.

Corm: Flesh white tinged with lilac near apex, with yellowish fibers; skin dark purple.

Origin, and derivation of name: Native variety; the descriptive name *Eleele* refers to the color of petioles.

Distribution: Limited, confined chiefly to the island of Hawaii; planted almost exclusively under upland culture.

Use: Mainly as table taro for home consumption.

Remarks: This variety is said to be the most drought-resistant of the Hawaiian taros.

80. Mana Okoa

General characteristics: Resembles *Mana Keokeo* except that petioles are decidedly lighter green and leaf blades are sagittate rather than ovate.

Petiole: 60 to 85 cm. long, light green, pinkish-red at edge, white at base.

Leaf blade: 45 to 55 cm. long, 30 to 35 cm. wide, 35 to 40 cm. from tip to base of sinus, sagittate, medium green; margins undulate; *piko* light greenish; lobes acute with narrow sinus.

Corm: Flesh white with yellowish fibers; skin whitish.

Origin, and derivation of name: Probably native of Hawaii; as no name could be ascertained it has been given the descriptive name of *Okoa*, meaning "another."

Distribution: Limited; occurs as a mixture in large plantings of *Mana Keokeo*.

Use: Fair table taro.

81. Moi

(*Neenee*)

General characteristics: Medium in height, well spreading, maturing within 9 to 12 months, producing from 5 to 10 *oha*; characterized by its light green petioles with pinkish base.

Petiole: 60 to 85 cm. long, slender, drooping, light green, indistinctly whitish-green at edge, a pink ring at base with lighter pink for 3 to 5 cm. above.

Leaf blade: 40 to 55 cm. long, 30 to 45 cm. wide, 30 to 45 cm. from tip to base of sinus, narrowly ovate, thin in texture, medium green; *piko* whitish; veins conspicuous, light green; lobes acute with shallow, wide sinus.

Corm: Flesh white with light pinkish tinge, especially near apex, the fibers yellow; skin pale pink.

Origin, and derivation of name: Native variety; probably named after the whitish Hawaiian fish, *moi*.

Distribution: At the present time this variety is one of the lesser-known taros but it is quite popular in certain districts, especially on Maui, Molokai, and in Puna, Hawaii; grown principally under upland culture but also does well under wetland culture.

Use: Good poi and table taro.

82. Oene

(*Owene Ulaula, Owene*)

General characteristics: Short to medium in height, moderately spreading, maturing within 9 to 12 months, producing from 6 to 15 *oha*; distinguished by the lilac-purple flecked petioles which are almost lacking in green and fairly numerous *oha*.

Petiole: 60 to 75 cm. long, light lilac-purple flecked, almost lacking in green, a dark pink ring at base with lighter pink for 3 to 5 cm. above.

Leaf blade: 35 to 45 cm. long, 25 to 30 cm. wide, 25 to 35 cm. from tip to base of sinus, ovate, dark green; *piko* purple; lobes obtuse with wide sinus.

Corm: Flesh white with light pinkish tinge, especially near apex; skin dark pink.

Origin, and derivation of name: Native variety; the derivation of the name is unknown.

Distribution: This variety is rare at the present time, being grown only by a few Hawaiians who keep collections of Hawaiian varieties for a hobby. It is a wild taro which used to grow fairly abundantly in open woodlands, with little care, but was seldom raised under cultivation.

Use: Not used for food at the present time.

Remarks: This variety, having the smallest corm of all the taros, was used only when other food supplies failed.

83. *Pikoele*

General characteristics: Medium in height, moderately spreading, maturing within 9 to 12 months, producing from 5 to 10 *oha*; characterized by unusually large, prominent purple *piko*.

Petiole: 65 to 90 cm. tall, dark green, red at edge, purplish at apex, white or greenish-white at base.

Leaf blade: 45 to 50 cm. long, 30 to 35 cm. wide, 35 to 40 cm. from tip to base of sinus, ovate, dark green; *piko* conspicuous, dark purple; lobes acute with narrow sinus.

Corm: Flesh chalky white with conspicuous yellowish fibers; skin white to cream-colored.

Inflorescence: Peduncle dark green; spathe 18 to 20 cm. long, the lower tubular portion about 3 cm. long, dark green, the upper portion yellow; spadix 6.5 to 7 cm. long, the sterile appendage about 9 mm. long.

Origin, and derivation of name: Native variety; the name *Pikoele* refers to the conspicuous, dark purple *piko*.

Distribution: Little-known variety of limited distribution.

Use: Mainly as table taro.

Remarks: Because of the similarity in names, this variety is sometimes confused with *Piko Eleele*.

84. *Pololu*

General characteristics: Medium in height, moderately spreading, maturing within 12 to 15 months, producing from 2 to 5 *oha*; distinguished by the white petiole bases and the light reddish-brown petioles, indistinctly diffused with yellowish-green.

Petiole: 60 to 85 cm. long, light reddish-brown indistinctly diffused with yellowish-green, purplish at apex, indistinctly red at edge, white at base.

Leaf blade: 35 to 45 cm. long, 25 to 35 cm. wide, 25 to 40 cm. from tip to base of sinus, sagittate, dark green with bluish cast; *piko* purple; lobes acute with shallow, narrow sinus.

Corm: Flesh chalky white with yellowish fibers; skin whitish.

Origin, and derivation of name: Native variety; named, no doubt, after Pololu Valley in the Kohala district of Hawaii.

Distribution: Grown to some extent in Kohala, Hawaii, under wetland culture, but seldom found elsewhere.

Use: A fairly good poi taro.

APPENDIX

APPENDIX

FINDING LISTS

PETIOLE COLORING

PRIMARILY RED

| | | |
|---------------------------|-------------|------------------------|
| Akado | Niue-ulaula | Uahiapele ¹ |
| Hapuu | Niue-uliuli | Ulaula Kumu |
| Kai Uliuli | Oene | Ulaula Moano |
| Kakakura-ula ¹ | Pololu | Ulaula Poni |

PRIMARILY BLACK

| | | |
|--------------------|-----------------------|---------------------------|
| Eleele Makoko | Lauloa Eleele-ula | Mana Eleele |
| Eleele Naioea | Lauloa Palakea-eleele | Manini-owali ¹ |
| Kumu-eleele | Lauloa Palakea-papamu | Nawao |
| Laaloa | Lauloa Palakea-ula | Piko Eleele |
| Lauloa Eleele-omao | Lehua Eleele | |

STRIPED

| | | |
|---------------------------|---------------------------|---------------------------|
| Akuugawai | Manini-owali ¹ | Uahiapele ¹ |
| Elepaio | Manini Toretore | Ula |
| Hinupuaa | Manini Uliuli | Ulaula Moano ¹ |
| Kakakura-ula ¹ | Nihopuu | Ulaula Poni ¹ |
| Manini Kea | Oopukai | |
| Manini-opelu | Papakolca-koae | |

PRIMARILY LIGHT TO MEDIUM GREEN

| | | |
|----------------------------|------------------------------|------------------------|
| Apu | Lauloa Palakea-keokeo | Moana |
| Apuwai | Lehua Keokeo | Ohe ² |
| Aweu | Lehua Maoli ² | Piko Kea |
| Haokea | Lihilihimolina ³ | Piko Keokeo |
| Iliuaua | Mana Kukuluhema ³ | Piko Lehua-apei |
| Kai Ala | Mana Okoa | Tahitian |
| Kai Kea ² | Mana Opelu ³ | Tsurunoko ² |
| Kalalau | Mana Ulu ² | |
| Lauloa Keokeo ² | Moi | |

¹ Double-keyed.² Suffused with other colors.³ Flecked with other colors.

PRIMARYLY DARK GREEN

| | | |
|---------------------------|--------------------------|--------------------------|
| Apowale ³ | Mana Keokeo | Papapueo |
| Bun-long ² | Mana Lauhoa | Piialii ² |
| Kuoho | Mana Uliuli ² | Pikoele |
| Lauloa Uliuli | Mana Weo | Piko Uaua |
| Lehua Palaii ² | Manapiko | Piko Ulaula ² |
| Leo ³ | Miyako ² | Piko Uliuli |
| Maea ³ | Paakai | Wehiwa ³ |

CORM COLORING

FLESH PURPLE AT CENTER, WHITE OUTSIDE

Lihilihimolina

FLESH WHITE WITH PURPLE FIBERS

Bun-long

FLESH YELLOW

| | | |
|-------------|----------|----------|
| Mana Opelu | Mana Ulu | Mana Weo |
| Mana Uliuli | | |

FLESH PURPLE

| | | |
|---------------|--------------|-----------------|
| Eleele Makoko | Lehua Maoli | Piko Lehua-apei |
| Eleele Naioea | Lehua Palaii | Piko Ulaula |
| Lehua Eleele | Oopukai | |
| Lehua Keokeo | Piialii | |

FLESH WHITE WITH YELLOW FIBERS; SKIN WHITE TO CREAM-COLORED
(Makes a gray poi unless otherwise indicated)

| | | |
|-----------------------|-----------------|-------------|
| Akuugawai | Leo | Niue-ulaula |
| Apu | Maea | Paakai |
| Apuwai ⁴ | Mana Keokeo | Piko Keokeo |
| Aweu | Mana Kukuluhema | Piko Uaua |
| Elepaio | Mana Okoa | Piko Uliuli |
| Haokea ⁴ | Manapiko | Pikoele |
| Hinupuaa | Manini Kea | Pololu |
| Kai Ala | Manini-opelu | Tahitian |
| Kakakura-ula | Manini Toretore | Tsurunoko |
| Kalalau | Manini Uliuli | Uahiapele |
| Laaloa | Miyako | Ula |
| Lauloa Palakea-eleele | Moana | |
| Lauloa Palakea-ula | Nihopuu | |

² Suffused with other colors.³ Flecked with other colors.⁴ Makes a silvery poi.

FLESH WHITE WITH YELLOW FIBERS; SKIN PINKISH TO PURPLISH OR REDDISH
(Makes a gray poi unless otherwise indicated)

| | | |
|-------------------------|-----------------------|----------------|
| Akado | Lauloa Palakea-keokeo | Ohe |
| Apowale | Lauloa Palakea-papamu | Papakolea-koae |
| Hapuu | Lauloa Uliuli | Papapueo |
| Iliuaua | Mana Eleele | Piko Eleele |
| Kai Kea ⁵ | Mana Lauloa | Piko Kea |
| Kai Uliuli ⁶ | Mana Ulaula | Ulaula Kumu |
| Kumu-eelee | Manini-owali | Ulaula Moano |
| Kuoho | Moi | Ulaula Poni |
| Lauloa Eleele-omao | Nawao | Wehiwa |
| Lauloa Eleele-ula | Niue-uliuli | |
| Lauloa Keokeo | Oene | |

OTHER VEGETATIVE CHARACTERS

TALL PETIOLES

| | |
|-----------|--------------|
| Akuugawai | Lauloa group |
|-----------|--------------|

SHORT PETIOLES

| | | |
|--------|-------|---------|
| Apu | Moana | Piialii |
| Apuwai | | |

DIVERGENT PETIOLE SINUS

| | |
|---------|-----------|
| Iliuaua | Tsurunoko |
|---------|-----------|

CUP-SHAPED LEAF BLADES

| | | |
|-----|--------|---------|
| Apu | Apuwai | Piialii |
|-----|--------|---------|

CRINKLED LEAF BLADES

| | | |
|---------|--------|-----------------|
| Apowale | Leo | Piialii |
| Apu | Moana | Piko Lehua-apei |
| Apuwai | Paakai | |

SHAGGY CORM SKIN

| |
|------|
| Aweu |
|------|

SINUS OF LEAF BLADE CUT TO PIKO

Piko group

⁵ Makes a translucent amber poi.

⁶ Makes a bluish poi.

BRANCHING PARENT CORMS

Mana group

RHIZOME-PRODUCING

Aweu

Kakakura-ula

MOTTLED LEAF BLADES

Elepaio

Uahiapele

SPLOTCHED PIKO

Mana group

Manapiko

Tahitian

HABITAT OF VARIETIES

GROWN PRINCIPALLY UNDER UPLAND CULTURE

| | | |
|-----------------------|------------------|-----------------|
| Akado | Lauloa Uliuli | Manini Toretore |
| Akuugawai | Lehua Eleele | Miyako |
| Aweu | Lehua Keokeo | Moana |
| Eleele Makoko | Lehua Palaii | Nawao |
| Eleele Naioea | Leo | Niue-ulaula |
| Elepaio | Lihilihimolina | Niue-uliuli |
| Hinupuaa | Maea | Oene |
| Iliuaua | Mana Eleele | Ohe |
| Kakakura-ula | Mana Keokeo | Oopukai |
| Kumu-eleele | Mana Kukuluhemia | Paakai |
| Kuoho | Mana Lauloa | Papakolea-koae |
| Laaloa | Mana Okoa | Pikoele |
| Lauloa Eleele-omao | Mana Opelu | Tahitian |
| Lauloa Eleele-ula | Manapiko | Tsurunoko |
| Lauloa Keokeo | Mana Ulaula | Ula |
| Lauloa Palakea-eleele | Mana Uliuli | Ulaula Moano |
| Lauloa Palakea-keokeo | Mana Ulu | Ulaula Poni |
| Lauloa Palakea-papamu | Mana Weo | Wehiwa |
| Lauloa Palakea-ula | Manini-opelu | |

GROWN PRINCIPALLY UNDER WETLAND CULTURE

| | | |
|---------|------------|-----------------|
| Apowale | Kai Uliuli | Piko Kea |
| Apu | Kalalau | Piko Keokeo |
| Apuwai | Nihopuu | Piko Lehua-apci |
| Kai Ala | Papapueo | Piko Uliuli |
| Kai Kea | Piialii | Pololu |

GROWN UNDER BOTH UPLAND AND WETLAND CULTURES

| | | |
|--------------|---------------|-------------|
| Bun-long | Lehua Palaii | Piko Uaua |
| Haokea | Manini Kea | Piko Ulaula |
| Hapuu | Manini-owali | Uahiapele |
| Lehua Eleele | Manini Uliuli | Ulaula Kumu |
| Lehua Keokeo | Moi | |
| Lehua Maoli | Piko Eleele | |

USAGE OF VARIETIES

POI TAROS

| | | |
|----------------------------|---------------------------|--------------------------|
| Apowale | Lauloa Eleele-ula | Piko Eleele |
| Apuwai ⁷ | Lehua Eleele | Piko Kea ⁷ |
| Eleele Makoko | Lehua Keokeo | Piko Keokeo |
| Eleele Naioea ⁷ | Lehua Maoli ⁷ | Piko Lehua-apei |
| Elepaio | Lehua Palaii ⁷ | Piko Uaua ⁷ |
| Haokea ⁷ | Manini Kea | Piko Ulaula |
| Hapuu | Moi | Piko Uliuli ⁷ |
| Kai Ala ⁷ | Nihopuu | Pololu |
| Kai Kea ⁷ | Ohe ⁷ | Uahiapele |
| Kai Uliuli ⁷ | Paakai | Ulaula Kumu |
| Kalalau | Papapueo | Ulaula Moano |
| Kuoho | Piialii ⁷ | Wehiwa |

LUAU TAROS

| | | |
|-----------------------|------------------------------------|-----------------|
| Apuwai ⁷ | Kalalau | Oopukai |
| Aweu | Lauloa group | Piko Eleele |
| Bun-long ⁷ | Lauloa Palakea-eleele ⁷ | Piko Lehua-apei |
| Haokea | Mana group | Wehiwa |
| Hapuu | Mana Keokeo ⁷ | |

KULOLO TAROS

| | | |
|--------------|------------|--------------------------|
| Lauloa group | Mana group | Mana Keokeo ⁷ |
|--------------|------------|--------------------------|

SPROUTS USED AS GREENS

| | | |
|--------|--------------|-----------|
| Akado | Haokea | Miyako |
| Apuwai | Lauloa group | Tsurunoko |

IMPORTANT TABLE TAROS⁸

| | | |
|-----------------------|-------------|-------------|
| Apuwai | Mana Keokeo | Piko Uliuli |
| Bun-long | Mana Ulu | Tsurunoko |
| Lauloa Keokeo | Piko Eleele | |
| Lauloa Palakea-eleele | Piko Kea | |

⁷ Indicates the most important varieties.⁸ All varieties may be used as table taros.

EARLY- OR LATE- MATURING VARIETIES

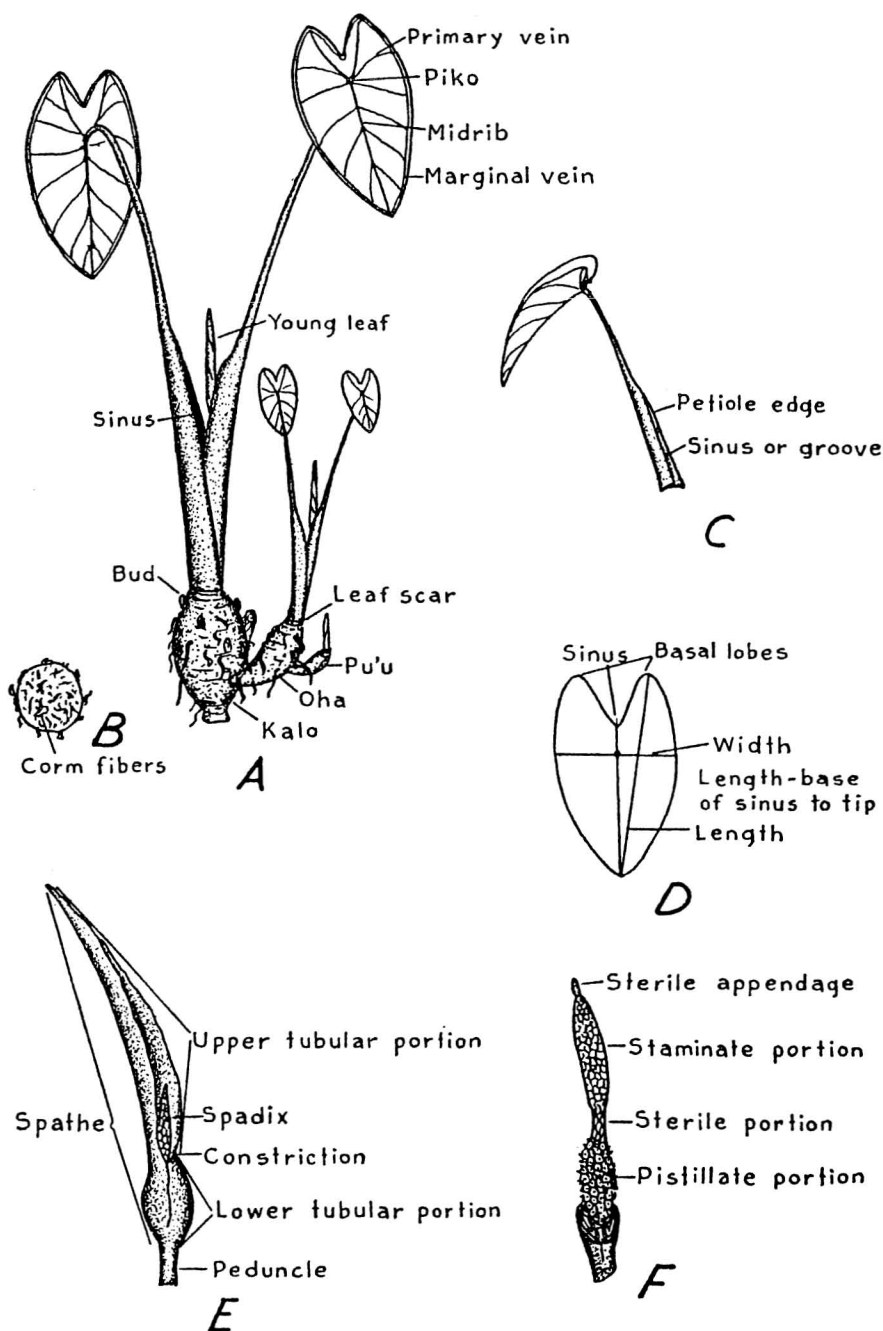
EARLY-MATURING

| | | |
|---------------|--------------|-------------|
| Akado | Kai Ala | Lehua Maoli |
| Apu | Kai Kea | Miyako |
| Apuwai | Kakakura-ula | Oopukai |
| Eleele Makoko | Lehua Eleele | Piialii |
| Eleele Naioea | Lehua Keokeo | Tsurunoko |

LATE-MATURING

| | | |
|----------|-------------|-------------|
| Hinupuaa | Piko Eleele | Piko Uaua |
| Ohe | Piko Kea | Piko Ulaula |
| Palaii | Piko Keokeo | Piko Uliuli |

ILLUSTRATED GLOSSARY OF BOTANICAL TERMS





GLOSSARY OF HAWAIIAN TERMS

- ala.** Fragrance; usually refers to the pleasant aroma emitted by the cooked corms of certain varieties, notably the varieties belonging to the *Kai* group.
- apei.** Crinkled.
- apowale.** To seize.
- apu.** Refers primarily to the cup, fashioned from a well-ripened coconut shell cut longitudinally, used for drinking medicine and other unpleasant liquids but not employed for ordinary drinking water.
- ekaeka.** Dirty reddish.
- ele.** Shortened or condensed form of *eleele*.
- eleele.** Dark-colored; black.
- elepaio.** A bird; flycatcher.
- ha.** Petiole.
- hao.** Cooked soft.
- hinu.** Smooth, glossy.
- huli.** Planting material consisting of a large central bud cut from the apex of the corm, with about $\frac{1}{8}$ to $\frac{1}{4}$ inch of the corm attached to about 6 to 12 inches of the basal portion of the petiole.
- ii.** Rot.
- ili.** Outer surface.
- kahuna.** A native priest, of whom there were several orders.
- kai.** Salt water; also the name of a group of taro varieties, possibly so named because of tolerance to saline conditions.
- kalalau.** Wanderer; name of a valley on Kauai.
- kalo.** A general term used to designate the whole taro plant; specifically it refers to the parent corm. *Kalo* and *taro* are merely dialectic variations of the same word, the former being the original and authentic Hawaiian name.
- kea.** Light-colored, not necessarily white.
- keokeo.** White or whitish, very light-colored.
- kukuluhema.** South point.
- kulolo.** A Hawaiian pudding prepared principally from grated raw taro and coconut milk, steamed underground.
- kumu.** A brilliantly red-colored fish.
- lau.** Leaf, leaves.
- lehua.** Red or reddish; refers to the reddish poi made from certain varieties of taro with lilac-purple corms; also the name of a group of taro varieties noted for the excellent quality of reddish poi.
- leo.** Influence arising from station.
- loa.** Long, tall.
- luau.** Greens prepared from young, delicate inner leaves of the taro plant. Since luau was an essential part of every native feast, the term luau has come to be a designation for the feast itself.

- maea.** Strong or bad smelling.
makoko. A reddish fish.
makua. Parent or older one; i.e., *kalo-makua* or parent corm.
mana. Branching; also the name of a group of taro varieties characterized by branching of the parent corm at the apex.
manini. A striped fish living in the coral reefs.
maoli. Native; genuine.
moana. Broad.
moano. A fish.
moi. A fish.
nawao. Wild taro; bad.
oha. Primary lateral cormlets or suckers produced from the parent corm.
ohe. Hawaiian bamboo.
okoa. Different; another.
omao. Green.
oopukai. A fish.
opelu. A fish (mackerel).
owali. Weak.
owene. The first crop of taro.
paiai. (*Pai*, a bundle, and *ai*, food.) A round bundle of pounded taro done up in ti leaves (*Cordyline terminalis*).
pake. Chinese.
pala. Soft; ripe, as fruit; mellow; cooked soft.
papa. Old; ancient.
pele. Goddess of the volcano.
piko. Navel; the upper surface of a leaf blade at the point of junction with the petiole. Also the name of a group of taro varieties.
poi. Pasty mass made by pounding or grinding cooked taro corms, with sufficient water added after thorough pounding to obtain the proper consistency, and allowed to ferment for a shorter or longer time before it is consumed.
pololu. Spear; a valley on Hawaii.
poni. Royal; purple.
puu. Secondary cormlets, too small to cook and not yet producing leaves.
uaua. Tough, elastic, viscid, glutinous, not easily separated.
ula. Shortened or condensed form of ulaula.
ulaula. Red, rosy, reddish.
uli. Shortened or condensed form of uliuli.
uliuli. A dark or dusky hue.
ulu. Breadfruit.
wai. Water.

LITERATURE CITED

- 1 BARRETT, O. W.
1910. *Promising Root Crops for the South. I.—Yautias, Taros and Dasheens*. U. S. Dept. of Agriculture, Bureau of Plant Industry, Bull. 164, pp. 1-29, illus.
- 2 CHRISTOPHERSEN, ERLING
1935. *Flowering Plants of Samoa*. Bernice P. Bishop Museum Bull. 128, 221 pp., illus.
- 3 CRAWFORD, DAVID LIVINGSTON
1937. *Hawaii's Crop Parade. Taro*, pp. 267-270.
- 4 HAWAII AGRICULTURAL EXPERIMENT STATION
1938. *Annual Report, 1937*, pp. 17-18.
- 5 HILL, ALBERT F.
1939. *The Nomenclature of the Taro and Its Varieties*. Harv. Univ. Bot. Mus. Leaflet 7(7) : 113-118.
- 6 JONES, MARTHA R., LARSEN, NILS P., AND PRITCHARD, GEORGE P.
1934. *Taro and Sweet Potatoes Versus Grain Foods in Relation to Health and Dental Decay in Hawaii*. Dental Cosmos 76 (4) : 395-409, illus.
- 7 KIKUTA, K., WHITNEY, LEO D., AND PARRIS, G. K.
1938. *Seeds and Seedlings of the Taro, Colocasia esculenta*. American Journal of Botany 25 (3) : 186-188, illus.
- 8 MACCAUGHEY, VAUGHAN, AND EMERSON, JOSEPH S.
1914. *A Revised List of Hawaiian Varietal Names for Kalo*. The Hawaiian Forester and Agriculturist 11 : 338-341.
- 9 MAGISTAD, O. C., AND FRAZIER, T. O.
1938. *Production and Marketing of Truck Crops in the Territory of Hawaii*. Hawaii Agr. Expt. Sta. Bull. 78, 46 pp., illus.
- 10 MILLER, CAREY D.
1927. *Food Values of Poi, Taro and Limu*. Bernice P. Bishop Museum, Bull. 37, 25 pp., illus.

INDEX

| Variety | No. | Variety | No. |
|-------------------------------------|-----|-------------------------------------|-----|
| Ahakea (See Haokea)..... | 73 | Kai Ala | 28 |
| Ahapii (See Piialii)..... | 32 | Kai Eleele (See Kai Uliuli)..... | 27 |
| Akado | 2 | Kai Kea | 29 |
| Akuugawai | 35 | Kaimoi (See Oopukai)..... | 52 |
| Ala (See Kai Ala)..... | 28 | Kai Uliuli | 27 |
| Ala Kea (See Kai Kea)..... | 29 | Kakakura (See Kakakura-ula)..... | 7 |
| Ala Keokeo (See Kai Ala)..... | 28 | Kakakura-ula | 7 |
| Ala Pipika (See Mana Opelu)..... | 9 | Kalalau | 74 |
| Apowale | 67 | Kumu (See Ulaula Kumu)..... | 48 |
| Apu | 31 | Kumu-eleele | 46 |
| Apuwai | 30 | Kuoho | 70 |
| Araimo (See Tsurunoko)..... | 1 | Laaloa | 76 |
| Aweo (See Aweu)..... | 6 | Lauloa Eleele | |
| Aweoweo (See Aweu)..... | 6 | (See Lauloa Eleele-omao)..... | 36 |
| Aweu | 6 | Lauloa Eleele-omao | 36 |
| Aweuwau (See Aweu)..... | 6 | Lauloa Eleele-ula | 37 |
| Bun-long | 5 | Lauloa Ha Eleele | |
| Bun-long-woo (See Bun-long)..... | 5 | (See Lauloa Eleele-omao)..... | 36 |
| Chinese (See Bun-long)..... | 5 | Lauloa Ha Keokeo | |
| Ekacka (See Akado)..... | 2 | (See Lauloa Keokeo)..... | 42 |
| Eleele (See Eleele Naioea)..... | 44 | Lauloa Ha Uliuli | |
| Eleele Lauloa | | (See Lauloa Uliuli)..... | 77 |
| (See Lauloa Eleele-ula)..... | 37 | Lauloa Keokeo | 42 |
| Eleele Makoko | 43 | Lauloa Oniono | |
| Eleele Naioea | 44 | (See Lauloa Palakea-keokeo)..... | 41 |
| Elepaio | 23 | Lauloa Palakea | |
| Forefore (See Manini Toretore).... | 55 | (See Lauloa Palakea-eleele)..... | 38 |
| Haakea (See Haokea)..... | 73 | Lauloa Palakea-eleele | 38 |
| Haawikea (See Haokea)..... | 73 | Lauloa Palakea-keokeo | 41 |
| Haehae (See Piko Uliuli)..... | 21 | Lauloa Palakea-papamu | 40 |
| Haehae Eleele (See Piko Eleele).... | 22 | Lauloa Palakea-ula | 39 |
| Haehae Keokeo (See Piko Keokeo) 19 | | Lauloa Papamu | |
| Haehae Ulaula (See Piko Ulaula) 17 | | (See Lauloa Palakea-papamu).... | 40 |
| Haokea | 73 | Lauloa Uliuli | 77 |
| Hapuu | 75 | Launui Paakai (See Paakai)..... | 33 |
| Hapuuupuu (See Hapuu)..... | 75 | Lehua (See Lehua Maoli)..... | 64 |
| Helemauna (See Piko Eleele)..... | 22 | Lehua Apei (See Piko Lehua-apei) 16 | |
| Hinapu (See Lauloa Uliuli)..... | 77 | Lehua Eleele | 65 |
| Hinupuaa | 60 | Lehua Keokeo | 63 |
| Hiwa (See Uahiapele)..... | 24 | Lehua Maoli | 64 |
| Iaia (See Ulaula Moano)..... | 50 | Lehua Palaii | 66 |
| Ieie (See Ulaula Moano)..... | 50 | Leo | 71 |
| Iliuaua | 4 | Lihilihimolina | 78 |
| Ipuolono (See Piko Eleele)..... | 22 | Maea | 72 |

| Variety | No. | Variety | No. |
|---------------------------------|--------|------------------------------------|-----|
| Makaopio (See Piko Eleele)..... | 22 | Owene Ulaula (See Oene)..... | 82 |
| Makoko (See Eleele Makoko)..... | 43 | Paakai | 33 |
| Maauweo (See Aweu)..... | 6 | Pake (See Iliuaua)..... | 4 |
| Mamauweo (See Aweu)..... | 6 | Palaii (See Lehua Palaii)..... | 66 |
| Mana Eleele | 79 | Palakea (See Lauhoa | |
| Mana Ha Ulaula | | Palakea-eleele) | 38 |
| (See Mana Ulaula)..... | 12 | Papakolea (See Papakolea-koae).... | 56 |
| Mana Kea (See Mana Keokeo)..... | 14 | Papakolea-koae | 56 |
| Mana Keokeo | 14 | Papapueo | 69 |
| Mana Kukuluhema | 15 | Papamū | |
| Mana Lauhoa | 13 | (See Lauhoa Palakea-papamū).... | 40 |
| Mana Okoa | 80 | Pau O Hiiaka (See Uahiapele)..... | 24 |
| Mana Opele | 9 | Piialii | 32 |
| Mana Owene (See Mana Ulu)..... | 8 | Pikoele | 83 |
| Manapiko | 25 | Piko Eleele | 22 |
| Mana Ulaula | 12 | Piko Kea | 18 |
| Mana Uliuli | 11 | Piko Keokeo | 19 |
| Mana Ulu | 8 | Piko Lehua-apei | 16 |
| Mana Weo | 10 | Piko Uaua | 20 |
| Manini (See Hinupuaa)..... | 60 | Piko Ulaula | 17 |
| Manini Kea | 54 | Piko Uli (See Piko Uliuli)..... | 21 |
| Manini-opelu | 59 | Piko Uliuli | 21 |
| Manini-owali | 45 | Pololu | 84 |
| Manini Toretore | 55 | Poni Mana (See Mana Eleele)..... | 79 |
| Manini Uliuli | 53 | Poni Ulaula (See Ulaula Poni)..... | 49 |
| Manua (See Mana Kukuluhema).... | 15 | Tahitian | 26 |
| Mauna (See Moana)..... | 34 | Toretore (See Manini Toretore).... | 55 |
| Miyako | 3 | Tsurunoko | 1 |
| Moana | 34 | Uahiapele | 24 |
| Moi | 81 | Uaua Keokeo (See Piko Keokeo).... | 19 |
| Moiula (See Piialii)..... | 32 | Uaua Piko (See Piko Uaua)..... | 20 |
| Mokohe (See Piialii)..... | 32 | Ualehu (See Uahiapele)..... | 24 |
| Naioea (See Eleele Naioea)..... | 44 | Ula | 57 |
| Nawao | 47 | Ulaula Kumu | 48 |
| Neence (See Moi)..... | 81 | Ulaula Moano | 50 |
| Nihopuu | 58 | Ulaula Poni | 49 |
| Niue (See | | Uwahiapele (See Uahiapele)..... | 24 |
| Niue-ulaula, Niue-uliuli)..... | 51, 61 | Waiakea (See Lehua Keokeo)..... | 63 |
| Niue-ulaula | 51 | Waianae (See Piko Uliuli)..... | 21 |
| Niue-uliuli | 61 | Wailana (See Lehua Eleele)..... | 65 |
| Nohu (See Eleele Makoko)..... | 43 | Wehewa (See Wehiwa)..... | 68 |
| Oapu (See Apu)..... | 31 | Wehiwa | 68 |
| Oene | 82 | Weo (See Mana Weo)..... | 10 |
| Ohe | 62 | Wewehiwa (See Wehiwa)..... | 68 |
| Oopukai | 52 | Yellow (See Mana Uliuli)..... | 11 |
| Owene (See Oene)..... | 82 | | |